APPENDICES TO THE DRAFT ENVIRONMENTAL IMPACT REPORT

Fox Point Farms

Case No.: MULTI-3524-2019; CPP-3525-2019; SUB-3526-2019; DR-3528-2019; and CDPNF-3529-2019
State Clearinghouse (SCH) No. 2020039079

Lead Agency:
City of Encinitas
505 South Vulcan Avenue
Encinitas, California 92024

Preparer:
Michael Baker International
5050 Avenida Encinas, Suite 260
Carlsbad, CA 92008

August 2020

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APPENDIX A-1 NOTICE OF PREPARATION AND SCOPING DOCUMENTS

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CITY OF ENCINITAS

Notice of Preparation of a Draft Environmental Impact Report

FROM: City of Encinitas, Planning Division
505 S. Vulcan Avenue
Encinitas, California 92024

TO: State Clearinghouse, Responsible Agencies, Trustee Agencies, and Interested Persons

PROJECT TITLE: Fox Point Farms

PROJECT APPLICANT: Nolen Communities, LLC

PROJECT LOCATION: 1150 Quail Gardens Drive, Encinitas, CA 92024; County Assessor Parcel No. 254-612-012

PROJECT CASE NUMBER: MULTI-3524-2019; CPP-3525-2019; SUB-3526-2019; USE-3527-2019; DR-3528-2019; and CDPNF-3529-2019

Pursuant to the California Environmental Quality Act (CEQA), the City of Encinitas (City) is issuing this Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the proposed project. Implementation of the project may require approvals from public agencies. As such, the City seeks input as to the scope and content of the EIR based on your agency's purview of the project (if any). In addition, comments are being solicited from other interested persons. Comments received in response to this Notice will be reviewed and considered by the City in determining the scope of the EIR.

PROJECT DESCRIPTION AND LIKELY ENVIRONMENTAL EFFECTS:



Nolen Communities, LLC (applicant) proposes the development of an "Agrihood" community on an approximately 21.5-acre site in the City of Encinitas, consistent with the Concept Plan for this property which was approved as part of the City's Housing Element Update in 2019. The project site would be subdivided into multiple lots. The community would consist of 53 for-sale cottages/carriage units/townhomes, 197 apartments, edible landscaping, community gardens, trails, a bocce court, social spaces, a community library, and a community recreation center. The project would also include a shared public/private agricultural amenity area including a farm-to-table restaurant, farm stand, event lawns, discovery garden, greenhouse and community work area, and an outdoor education patio. Alternatives for project access at Sidonia Street are currently being evaluated by the City at this time. Lastly, the northern portion of the project site would remain in agricultural use, serving as an organic farm operation. Of the 250 residential units proposed in the community, 211 would be market-rate units and 39 would be "very low" (50 percent of area median income) affordable residential units. Additional information regarding the project may be obtained on the City's website at: https://encinitasca.gov/I-Want-To/Public-Notices/Development-Services-Public-Notices under "Environmental Notices." It is anticipated that the EIR will focus on the following environmental issue areas: aesthetics, air quality, biological resources, cultural resources, energy conservation, greenhouse gas emissions, geology and soils, hazards and hazardous materials, hydrology/water quality, noise, public services and recreation, transportation, tribal cultural resources, and utilities and service systems.

COMMENT PERIOD: Please send your comments no later than April 27, 2020, to Scott Vurbeff, Environmental Project Manager, Encinitas Planning Division, 505 S. Vulcan Avenue, Encinitas, CA 92024, or via email to svurbeff@encinitasca.gov.

Scott Vurbeff, Environmental Project Manager
City of Encinitas, Planning Division

March 27, 2020
Date

CITY OF ENCINITAS

Notice of Preparation of a Draft Environmental Impact Report
Fox Point Farms ▪ Letters Received

LIST OF LETTERS

Agencies:

California Department of Transportation
Native American Heritage Commission
San Diego Association of Governments
San Diego County
State Clearinghouse

Individuals and Organizations:

Andrew Matuszeski
Angelica Pedler (3 letters)
Barry Pedler
Brad Bosacki
Chris Nelson & Maeve Taaffe
Christine Hayes
Davis and Laura Woodward
Donna Carr
Douglas Shaw (two letters)
Drew Johnson
Elyce Nissinoff
Erin Hoherd
Joe and Peggy Williams
Joe Boyle
Kathy Johnson
Kim and Elaine Zirpolo (two letters)
Lauren Court Neighbors
Loralynn and Dave Sheeron
Loralyyn Sheeron
Lucinda Hansen
Mia Marinos
Renee and Eric Norling
Robert Schiller
Scott Hinkle
Susan Pignataro
Trisha Hegg
Wendy Shaw
William Nissinoff
Wynn Roy

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Making Conservation a California Way of Life.

April 20, 2020

11-SD-5
PM 42.699
Fox Point Farms
NOP/SCH#2020039079

Mr. Scott Vurbeff
Environmental Project Manager
City of Encinitas
505 S. Vulcan Ave.
Encinitas, CA 92024

Dear Mr. Vurbeff:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the Notice of Preparation for the Draft Environmental Impact Report (NOP) for the Fox Point Farms project located near Interstate 5 (I-5). The mission of Caltrans is to provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability. The Local Development-Intergovernmental Review (LD-IGR) Program reviews land use projects and plans to ensure consistency with our mission and state planning priorities.

Caltrans has the following comments:

Traffic Impact Study

- A Vehicle Miles of Travel (VMT) based Traffic Impact Study (TIS) should be provided for this project. Please use the Governor's Office of Planning and Research Guidance to identify VMT related impacts.[1]

- The TIS may also need to identify the proposed project's near-term and long-term safety or operational issues, on or adjacent any existing or proposed State facilities.

[1] California Governor's Office of Planning and Research (OPR) 2018. "Technical Advisory on Evaluating Transportation Impacts in CEQA." http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

Environmental

Caltrans welcomes the opportunity to be a Responsible Agency under the California Environmental Quality Act (CEQA), as we have some discretionary authority of a portion of the project that is in Caltrans' Right-of-Way (R/W) through the form of an encroachment permit process. We look forward to the coordination of our efforts to ensure that Caltrans can adopt the alternative and/or mitigation measure for our R/W.

An encroachment permit will be required for any work within the Caltrans' R/W prior to construction. As part of the encroachment permit process, the applicant must provide approved final environmental documents for this project, corresponding technical studies, and necessary regulatory and resource agency permits. Specifically, CEQA determination or exemption. The supporting documents must address all environmental impacts within the Caltrans' R/W and address any impacts from avoidance and/or mitigation measures.

We recommend that this project specifically identifies and assesses potential impacts caused by the project or impacts from mitigation efforts that occur within Caltrans R/W that includes impacts to the natural environment, infrastructure (highways/roadways/on- and off-ramps) and appurtenant features (lighting/signs/guardrail/slopes). Caltrans is interested in any additional mitigation measures identified for the DEIR.

Right-of-Way

- R/W and access rights seem to be depicted correctly. Per Business and Profession Code 8771, perpetuation of survey monuments by a licensed land surveyor is required, if they are being destroyed by any construction.
- Any work performed within Caltrans R/W will require discretionary review and approval by Caltrans and an encroachment permit will be required for any work within the Caltrans R/W prior to construction.

Additional information regarding encroachment permits may be obtained by contacting the Caltrans Permits Office at (619) 688-6158 or by visiting the website at http://www.dot.ca.gov/trafficops/ep/index.html. Early coordination with Caltrans is strongly advised for all encroachment permits.

If you have any questions, please contact Kimberly Dodson, of the Caltrans Development Review Branch, at (619) 688-2510 or by e-mail sent to Kimberly.Dodson@dot.ca.gov.

Sincerely,

Kimberly Dodson

for
MAURICE EATON, Branch Chief
Local Development and Intergovernmental Review

NATIVE AMERICAN HERITAGE COMMISSION

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Laura Miranda
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VICE CHAIRPERSON
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NAHC.ca.gov

April 1, 2020

Scott Vurbeff
City of Encinitas, Development Services Dept.
505 S. Vulcan Ave.
Encinitas, CA 92024

Re: 2020039079, Fox Point Farms Project, San Diego County

Dear Mr. Vurbeff:

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
Staff Services Analyst

cc: State Clearinghouse

From: Ferchaw, Tracy <Tracy.Ferchaw@sandag.org>
Sent: Monday, April 27, 2020 11:17 AM
To: Scott Vurbeff
Subject: Fox Point Farms - Notice of Preparation of a Draft Environmental Report

Follow Up Flag: Follow up
Flag Status: Completed

[**NOTICE:** Caution: External Email]

Mr. Vurbeff,

Thank you for the opportunity to comment on the City of Encinitas' Fox Point Farms (project case # MULTI-35242019) Draft EIR. SANDAG is submitting the following comments, below:

- SANDAG suggest a transportation analysis on impacts of the project on multimodal transportation, including impacts to walking and biking be considered. Mitigation should include consideration of how to provide safe and comfortable bicycling and walking connections to surrounding destinations. These could include buffered or protected bikeways, intersection crossing improvements, and other safety and comfort improvements.
- Special attention should be paid to pedestrian crossings, with considerations included for bulb-outs at intersections and other traffic calming features. It will be important to create a safe and comfortable walking environment to encourage nonmotorized travel within the project site.
- High quality bike parking, such as secure bike lockers, should be included at all community destinations, including the community center, greenhouse, restaurant, and farm area. Bike parking should be located as close as possible to entrances of buildings or open spaces in highly visible areas.

Please let Seth Litchney (seth.litchney@sandag.org) and Tracy Ferchaw (tracy.ferchaw@sandag.org) know if you have any questions.

Thank you very much,

Tracy Ferchaw
Associate Business Analyst

(619) 699-6977
401 B Street, Suite 800, San Diego, CA 92101

SANDAG



SANDAG hours: Tuesday-Friday and every other Monday from 8 a.m.-5 p.m.
Employees are teleworking while our offices are closed during the COVID-19 pandemic.

County of San Diego

MARK WARDLAW
DIRECTOR

PLANNING & DEVELOPMENT SERVICES
5510 OVERLAND AVENUE, SUITE 310, SAN DIEGO, CA 92123
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KATHLEEN A. FLANNERY
ASSISTANT DIRECTOR

April 27, 2020

Scott Vurbeff
Environmental Project Manager
City of Encinitas Planning Division
505 S. Vulcan Avenue
Encinitas, CA 92024

Via e-mail to: svurbeff@encinitasca.gov

REQUEST FOR COMMENTS ON THE NOTICE OF PREPARATION DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE FOX POINT FARMS PROJECT IN THE CITY OF ENCINITAS

Dear Mr. Vurbeff:

The County of San Diego (County) reviewed the City of Encinitas' (City) Notice of Preparation of a Draft Environmental Impact Report for the Fox Point Farms (Project), dated March 27, 2020.

The County appreciates the opportunity to review the Project and offers the following comments for your consideration. Please note that none of these comments should be construed as County support for this Project.

VECTOR CONTROL

The County of San Diego Vector Control Program (VCP) is responsible for the protection of public health through the surveillance and control of mosquitoes that are vectors for human disease including West Nile virus (WNV). The VCP has completed their review and has the following comments regarding the proposed Project.

1. The VCP respectfully requests that the Project design features address potential impacts from possible mosquito breeding sources created by the Project and that the Project is constructed in a manner to minimize those impacts. Specifically, ensure construction-related depressions created by grading activities, vehicle tires, ditches, and landscaping do not result in depressions that will hold standing water. In addition, ensure drainage areas and other structures do not create a potential mosquito breeding source. Any area that is capable of accumulating and holding at least ½ inch of water for more than 96 hours can support mosquito breeding and development.

2. Please note, the VCP has the authority pursuant to State law and County Code to order the abatement of any mosquito breeding that does occur either during construction or after the Project is completed that is determined to be a vector breeding public nuisance. The

VCP will exert that authority as necessary to protect public health if the Project is not designed and constructed to prevent such breeding.

3. For your information, the County of San Diego Guidelines for Determining Significance for Vectors can be accessed at the following link: http://www.sandiegocounty.gov/content/dam/sdc/pds/docs/vector_guidelines.pdf and the California Department of Public Health Best Management Practices for Mosquito Control in California is available at the following link: https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/MosquitoesandMosquitoBorneDiseases.aspx#

4. The VCP appreciates the opportunity to participate in the environmental review process for this Project. If you have any questions regarding these comments, please contact Daniel Valdez at 858-688-3722 or by e-mail at Daniel.Valdez@sdcounty.ca.gov.

PARKS AND RECREATION

1. The County Department of Parks and Recreation (DPR) owns and manages land directly north of the proposed Project (Magdalena Ecke Open Space).

2. DPR requests that the developer specify on a map the location of areas that would be used on temporary basis during construction to serve as staging areas to ensure temporary impact areas do not encroach on open space property.

The County appreciates the opportunity to comment on this Project. We look forward to receiving future documents related to this Project and providing additional assistance, at your request. If you have any questions regarding these comments, please contact Timothy Vertino, Land Use / Environmental Planner, at (858) 495-5468, or via e-mail at timothy.vertino@sdcounty.ca.gov.

Sincerely,

Eric Lardy, AICP
Chief, Advance Planning Division
Planning & Development Services

cc: Benjamin Mills, Policy Advisor, Board of Supervisors, District 5
Nicole Boghossian, CAO Staff Officer, LUEG
Mary Bennett, Administrative Analyst, DEH
Emmet Aquino, Park Project Manager, DPR

From: Justin Le <Justin.Le@OPR.CA.GOV>
Sent: Tuesday, April 28, 2020 2:13 PM
To: Scott Vurbeff
Subject: SCH# 2020039079

[**NOTICE:** Caution: External Email]

The State Clearinghouse would like to inform you that our office will be transitioning from providing a hard copy of acknowledging the close of review period on your project to electronic mail system.

Please visit: https://ceqanet.opr.ca.gov/2020039079/2 for full details about your project and if any state agencies submitted comments by close of review period (note: any state agencies in **bold**, submitted comments and are available).

This email acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please email the State Clearinghouse at state.clearinghouse@opr.ca.gov for any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Justin Le | Student Assistant
Governor's Office of Planning and Research
State Clearinghouse Unit
1400 10th Street, Room 113
Sacramento, CA 95814
(916) 445-0613

From: andrew matuszeski <jandrewmat@yahoo.com>
Sent: Saturday, April 11, 2020 12:33 PM
To: Scott Vurbeff
Cc: Council Members
Subject: Fox Point Development

Follow Up Flag: Follow up
Flag Status: Flagged

[**NOTICE:** Caution: External Email]

Mr. Vurbeff and City Council Members,

Just a quick note on the Fox Point Farms development project.

Our family moved to Fox Point three years ago, but we've lived in Encinitas for over 20 years. I understand the need to accommodate housing, and the state requirements to do so. I only request that it be done with care to avoid negative impacts on existing neighborhoods as much as possible.

To that end, I respectfully implore you to require the applicant to implement the following changes to the project proposal:

• The Fire Department requires two points of road access. The current plan has road access on Quail Gardens and into our neighborhood on Sidonia. Please require the applicant to make Quail Gardens the primary ingress/egress, and reserve Sidonia as a gated emergency/fire access only. Without this change, the character of our neighborhood will be destroyed by a huge volume of traffic cutting through. In addition, ALL construction traffic needs to be routed through the Quail Gardens entrance, with no staging of equipment or materials in the existing neighborhood.

• When we lived on Devonshire adjacent to the hospital, there was a sticker parking system for resident parking only. Please implement the same on Sidonia and side streets to avoid spillover parking from the new development clogging our streets and reducing visibility to kids playing in the neighborhood.

• As we now know the zoning phrase "in perpetuity" meant nothing. Understandably, my neighbors are concerned that the remaining cultivated land in the "Agrihood" concept could easily be developed later as a Phase II of Fox Point Farms unless that land is protected in a legally binding way. The developer points to a 99-year lease as protection. But if you've ever broken a car lease to upgrade your ride, then you know that a lease isn't hard to renegotiate or break. I ask you to explore deed restrictions or other legally binding instruments to assure neighbors that the remaining ag land will be REAL "in perpetuity."

• The rains yesterday were a reminder that the Echter property is graded poorly, and dumps a literal river down the driveway onto and across the width of Sidonia Street, excavating potholes along the way. Runoff and grading are a serious issue, and I suspect that the small swales in the plan will be ineffective and will overtop in no time flat. The forecast is calling for more rain later in the week. Please come out and measure the flow rate coming down that driveway and do the math on how fast the planned swale will fill up. I think you'll be surprised.

These are reasonable requests. These are the requests you'd make if it was your neighborhood. Please use your considerable approval powers to do the right thing for our neighbors/your constituents in Fox Point.

Thanks.

—Andrew Matuszeski
1061 Passiflora Ave

Sent from Yahoo Mail for iPhone

From: Angelica Pedler <aspedler@gmail.com>
Sent: Saturday, April 11, 2020 9:16 AM
To: Scott Vurbeff
Cc: Anna Colamussi; Jesse Owens
Subject: Re: Dramm& Echter- video 3

Follow Up Flag: Follow up
Flag Status: Flagged

[**NOTICE:** Caution: External Email]

This should work

https://m.youtube.com/watch?v=ewpS2aj2EPA

Sent from my iPhone

> On Apr 10, 2020, at 5:57 PM, Scott Vurbeff <SVurbeff@encinitasca.gov> wrote:
>
> Ok, thank you.
>
> Scott
>
> ---
>
> **From:** Angelica Pedler <aspedler@gmail.com>
> **Sent:** Friday, April 10, 2020 5:49 PM
> **To:** Scott Vurbeff <SVurbeff@encinitasca.gov>
> **Subject:** Re: Dramm& Echter- video 3
>
> [**NOTICE:** Caution: External Email]
>
> Thanks Scott, I'm having issues downloading it but I'll try again another way.
>
> Have a good weekend
>
> Angelica
>
> Sent from my iPhone
>
> > On Apr 10, 2020, at 5:43 PM, Scott Vurbeff <SVurbeff@encinitasca.gov> wrote:

Angelica,

You video wasn't attached to the email.

Scott

From: Angelica Pedler <aspedler@gmail.com>
Sent: Friday, April 10, 2020 5:39 PM
To: Scott Vurbeff <SVurbeff@encinitasca.gov>
Cc: Anna Colamussi <acolamussi@encinitasca.gov>; Jesse Owens <jowens@encinitasca.gov>
Subject: Dramm& Echter- video 3

[**NOTICE:** Caution: External Email]

Sent from my iPhone

> On Apr 10, 2020, at 5:22 PM, Scott Vurbeff <SVurbeff@encinitasca.gov> wrote:
>
> Angelica,
>
> Thank you for the videos, which have been forwarded to our development review engineers. This issue will be addressed as part of the proposed project design.
>
> Sincerely,
>
> **Scott Vurbeff | Environmental Project Manager | Encinitas Development Services Dept.**
> 505 S. Vulcan Ave. | Encinitas, CA 92024 | ph. 760-633-2692
> svurbeff@encinitasca.gov
>
> **In response to the COVID-19 pandemic, the City has issued a Proclamation of Local Emergency and activated its Emergency Operations Center (EOC). All City offices are currently closed to**

the public until further notice. City staff will continue to conduct City business through teleconferencing and phone calls. We will continue our "virtual city hall" services via the Customer Service Center portal, where many permits and plans can be processed electronically. Contacts for city departments and services can be found via https://encinitasca.gov/Home/City-News/ArticleID/216.

From: Angelica Pedler <aspedler@gmail.com>
Sent: Wednesday, April 8, 2020 11:54 AM
To: Scott Vurbeff <SVurbeff@encinitasca.gov>
Cc: Anna Colamussi <acolamussi@encinitasca.gov>
Subject: IMG_4571.mov - Dramm& Echter- video 2

[NOTICE: Caution: External Email]

A better perspective

Sent from my iPhone

This message contains confidential information and is intended only for the individual(s) addressed in the message. If you are not the named addressee, you should not disseminate, distribute, or copy this e-mail. If you are not the intended recipient, you are notified that disclosing, distributing, or copying this e-mail is strictly prohibited.
<IMG_4571.mov>

From: Angelica Pedler <aspedler@gmail.com>
Sent: Wednesday, April 8, 2020 11:53 AM
To: Scott Vurbeff
Cc: Anna Colamussi
Subject: IMG_4580.MOV - Dramm & Echter's runoff into Fox Point (Sidonia Street/ Sidonia Crt)

Follow Up Flag: Flag for follow up
Flag Status: Flagged

[NOTICE: Caution: External Email]

Hi Scott
This was taken a few minutes ago by a neighbor, it's an example of what happens to our street every time it rains. Bob's has never corrected this hopefully Nolen Communities or whatever developer ends up with this project fixes this.
Angelica

Sent from my iPhone

From: Scott Vurbeff <SVurbeff@encinitasca.gov>
Sent: Monday, April 13, 2020 3:05 PM
To: Scott Vurbeff
Subject: FW: Dramm& Echter- video 3

From: Angelica Pedler <aspedler@gmail.com>
Sent: Monday, April 13, 2020 2:26 PM
To: Scott Vurbeff <SVurbeff@encinitasca.gov>
Cc: Anna Colamussi <acolamussi@encinitasca.gov>; Jesse Owens <jowens@encinitasca.gov>
Subject: Re: Dramm& Echter- video 3

[**NOTICE:** Caution: External Email]

Hi Scott,

As you can see it's a big problem. The first house the water hits has been flooded a few times over the years (Mr. RB Bosacki, 1152 Sidonia Court).

The project needs the retention basin/ swale to be continuous all the way along the western edge of the property and sufficiently large/ deep to prevent future damage.

Thank you for acknowledging receipt of the video.

Angelica

From: Barry Pedler <Barry.Pedler@hunterindustries.com>
Sent: Monday, March 30, 2020 12:05 AM
To: Scott Vurbeff
Cc: Anna Colamussi; cblakespear@encinitas.gov; Kellie Shay Hinze; Tony Kranz; Joe Mosca; Jody Hubbard; Karen Brust; Barry Pedler
Subject: RE: Noland communities Fox Point Farms project parking & traffic issues.

[**NOTICE:** Caution: External Email]

Dear Mr. Vurbeff,

Regarding the "Fox Point Farms" housing element proposal, 1150 Quail Gardens Drive. The currently flawed proposal by Nolan Communities LLC has several serious issues that I hope you would investigate and resolve. The existing residential community of Fox Point to the west is completely opposed to the proposed plan, and we hope that you can resolve several issues so these disagreements do not escalate. The main issues are safety, parking, traffic, and civil rights.

Parking:
The Nolan Communities proposal does not include enough parking to avoid overflow outside the project. A total of 551 spaces, less the 85 spaces allocated for commercial, restaurant, visitor parking leaves only 466 = 1.86 cars per unit. Obviously not enough. Plus the doubled, 2-deep parking is not functional. The project does not yet have enough parking spaces for residents purposes, let alone supposed events. You will have the same situation on Sidonia St, as the city faced on Seeman Drive. The solution is using some of the Ag or commercial parcel land, golf course parking, underground parking, or lower density. Fox Point residents demand a continuous wall along Sidonia Street, and as the City granted on Seeman Drive, "No parking" on the East side of Sidonia, and resident permitted parking within the existing Fox Point community. As Councilor Krantz said, "*Overflow parking on Sidonia is not an option for me*"

Traffic: The SANDAG traffic report shows that Leucadia Blvd is currently over-burdened with 40,000 car trips per day. If this project plus 3 additional high density "housing element" projects planned for Quail Gardens Drive proceed, the already over trafficked Leucadia Blvd, will become unworkable and a risk for emergency vehicle access.
The best solution is to have the new development (Fox Point Farms) traffic access a left turn access onto Quails Garden Dr. to use under-utilized La Costa Ave for access to the I-5 corridor. I'm sure that project property owner Bob Echter, as the biggest beneficiary of this project, would be happy to give an easement through his property at the north edge of the project, to allow a left turn onto Quails Garden drive. La Costa Avenue is the best solution to the serious traffic issue.

Safety: #1. The Leucadia Blvd and Sidonia St intersection is already extremely dangerous, and has been the site of many potentially fatal incidents, due to speeds, and

drivers headed towards I-5 being sun-blinded as they crest the slope during the hours before sunset. That is one reason why the new development's traffic cannot be dumped into our residential neighborhood, compounding that dangerous intersection.
#2. Our R3 residential streets are not designed for high density housing traffic. Fox Point is a residential community where children play on Sidonia Street. For the safety of our families we are completely opposed to any high-density project traffic access dumped into our community.
#3. Practically all Encinitas' recent housing developments are separated from pre-existing communities, by a wall, and have one entry/egress point. If for some reason the fire Marshall requires a second access point, I'm sure Bob Echter, will be happy to allow an easement at the northern end of the project so emergency vehicles can enter through the agricultural area, free of obstruction. The most accessible and expedient access point is, of course, off Leucadia Blvd. A break in the median strip for emergency vehicles would allow the fastest access through an Opticom gate.
#4. Decades of intensive agriculture on this site will have accumulated significant chemical residue. We hope that a continuous wall and retention basin swale can physically separate and help protect our existing residential neighborhood to keep our families safe.

Civil Rights: Due to restriction of gatherings and meetings as prescribed by the Govenor's COVID-19 declaration, the people of Encinitas, and particularly older residents are being denied the right to attend city planning meetings and to address the council. It would be a violation of civil rights to ram this project through approvals while the residents are confined to their homes and cannot fully participate. This project should be put on pause until the situation allows open review and public comment.

We ask that you reject Nolan Communities' unacceptable proposal and require them to correct parking, traffic and safety issues, with 1) a continuous wall separating the existing R3 residential and new high-density development, 2) zero traffic entry/egress onto Sidonia street, 3) adding sufficient parking for the realistic outcomes, and 4) directing traffic north onto La Costa Blvd, to maximize safety and minimize environmental concerns of grid-locked traffic.

> We all, including Nolan Communities should learn from experience and precedent of the Coral Cove project on Ashbury Street. Complete separation of the new and existing neighborhoods was the final solution, and planning this from day 1 will avoid years fighting and litigation.
>
> > ……Precedent (below) from Ashbury St, Encinitas project, 2005

Neighbors, developer find fault with environmental report

By ADAM KAYE - STAFF WRITER
DEC. 6, 2005 12 AM

ENCINITAS —— Some neighbors on Monday blasted a key finding in an environmental impact report for a planned 69-home subdivision on Vulcan Avenue.

Released Monday for a 45-day public review, the report prepared by Dudek & Associates states that the "environmentally superior alternative" for the 10-acre project would include two private streets linking the project to narrow Ashbury Street to the north. The alternative is considered superior because it integrates a new neighborhood with an old one, according to the report.

"The project would not be closed off respective to the surrounding community," the report states.

A better alternative, two neighbors and a spokesman for developer Shea Homes said, would be to restrict all traffic from the project onto a single driveway served by Vulcan.

The proposed project is two blocks south of Vulcan's intersection with La Costa Avenue in Leucadia.

In interviews Monday, neighbors Dan Cool and Neil Prince said that linking private streets from the project to Ashbury would introduce unwelcome traffic and parked cars onto Ashbury, HygeiaAvenue and other streets.

The 69 homes are estimated to add 443 vehicle trips daily onto Vulcan's average daily load, which ranges from 4,464 to 4,530 trips.

Cool and Prince said they have met regularly with a Shea Homes representative and have agreed that landscaping and a sidewalk would improve Ashbury —— but not the linkages of private streets.

"We've worked with the developers for two years, we've had community participation, and we find the city, in its wisdom, has chosen an alternative without any participation from the neighborhood," Prince said. "We would like to see the proposal as worked out with the developer as the best alternative."

Prepared for the city by Dudek & Associates, Inc., the environmental report cites a city policy that discourages isolating new developments in making its recommendation to open up private streets to the development.

The policy encourages homes of new subdivisions to face those of surrounding neighborhoods.

"This alternative would provide an open interface with the surrounding neighborhood," Encinitas environmental coordinator Scott Vurbeff wrote in a summary of the report.

Neighbors can enjoy plenty of 'interface' just by walking from one street to the next, said Cool, a seven-year resident who livesacross Ashbury Street from the planned project.

Most neighbors would rather the planned homes not face Ashbury,Cool said.

“It’s just very interesting that the community itself and the developer worked through a system to voice concerns and to work through things (and then) we get this (report) recommending something we don’t want,” he said. “Have we all been potted plants wasting our time?”

The so-called “Ashbury Buffer Alternative,” which has no connections from the project to the Ashbury Street, provides landscaping that the homeowners association would maintain, a sidewalk, and a street width that meets the fire department’s standards, said John Nabors, a spokesman for Shea Homes.

“We’re not supporting the (alternative with the linkages) because the neighborhood doesn’t like it,” he said.

In addition to the project’s relationship with Ashbury Street,the environmental report identifies these issues:

- To control traffic generated by the project, the developer would be required to improve the Vulcan Avenue intersection at LaCosta Avenue with expanded turn lanes and a traffic signal.

Contact staff writer Adam Kaye at (760) 943-2312 orakaye@nctimes.com.

Respectfully

Barry Pedler
Phone: 760-840-0834
barry.pedler@hunterindustries.com

From: Barry Pedler <bazpedler@gmail.com>
Sent: Tuesday, April 7, 2020 9:12 PM
To: Scott Vurbeff; Anna Colamussi
Cc: Catherine Blakespear; Kellie Shay Hinze; Tony Kranz; Jody Hubbard; Karen Brust; Joe Mosca; City Clerk
Subject: FW: FW: NOP Notice of Preparation Fox Point Farms Case#MULTI-3524-2019

Follow Up Flag: Follow up
Flag Status: Flagged

[**NOTICE:** Caution: External Email]

Dear Mr Vurbeff

I am replying to your NOP (Notice of Preparation) letter for the Environmental Impact Report, which I received March 27th in regard to the proposed development of 250 Homes on the Dramm & Echter property, Fox Point Farms 1150 Quail Gardens Drive.

My family have lived at 1128 Sidonia Street across from the Dramm & Echter property for 23 years. It is the only home my son and daughter have known. Along with many Fox Point residents, we have major concerns regarding the environmental impact of the proposed "Fox Point Farms" project as briefly summarized below.

a) **Noise, safety, security**: We wish to minimize excessive vehicles on our residential streets, and address safety concerns, by keeping the new high-density R30 mixed-use proposed project separate from our existing R3 residential community to the west. On the eastern side of the proposed project, bordering Quail Gardens Drive, the city recently approved a 5' 6" cinder block wall, 6' above grade/street level, for privacy and noise abatement. As the most recent city-approved construction bordering this project, this wall type should naturally become the standard for our western edge of the project also, to be equally considerate of residents to the west.

b) **Traffic**: As with other recently approved residential communities in Encinitas, like Coral Cove, Ashbury St off Vulcan, we need to separate the communities to avoid volumes of commuter traffic being dumped onto our residential street. As with our children, our neighbor's children, aged 7 and 9, ride their bikes and skateboards on Sidonia Street every day. There must not be traffic entry/egress onto Sidonia Street. Due to the currently impacted Leucadia Blvd traffic load, entry/egress for the project should be onto a dedicated north-bound exit onto Quails Garden Drive, via an easement, so that I-5 bound traffic can utilize La Costa Blvd.
    a. The Sidonia St/Leucadia Blvd intersection is notoriously dangerous, as west-bound cars accelerate after cresting the long hill and regularly run the red light. Adding vehicle trips into this intersection from the project only increases the probability of fatalities.
    b. 2 of our cars have been totalled/written-off while parked on Sidonia Street, in front of our house. Making it into a commuter artery for proposed project traffic would only increase speeds and danger to us. All project entry/agree must be onto Quails Garden drive.

c) **Contamination**: The project site has historically had significant drainage issues with excess flows running off the site, at depth, across Sidonia street, making the road slippery. A retention swale on the west side of the proposed project needs to be continuous and significantly large enough to handle this issue.

d) **Aesthetics**: The proposed **20ft high advertising billboard** on the corner of Sidonia Street, is completely incongruous in any residential neighborhood, and is clearly against city standards. I am sure you would not approve this.

In conclusion, we request that you mitigate impact on our family-based residential community of Fox Point, on Sidonia Street and to the west, by keeping us completely separated from the proposed mixed-use R30 project, by a solid sound proof wall, as you have approved on the eastern side of the same project, and all our neighboring communities along Leucadia Blvd to the south.

Thank you for your excellent work in keeping Encinitas a safe and family friendly community.
Yours Sincerely

Barry Pedler
1128 Sidonia Street
Encinitas
Parcel 2545532900

From: Brad Bosacki <brad.bosacki@gmail.com>
Sent: Wednesday, April 8, 2020 11:54 AM
To: Scott Vurbeff
Cc: Anna Colamussi
Subject: Fwd: Fox Point resident

Follow Up Flag: Follow up
Flag Status: Flagged

[**NOTICE:** Caution: External Email]

Sent from my iPhone

Begin forwarded message:

> **From:** Brad Bosacki <brad.bosacki@gmail.com>
> **Date:** April 8, 2020 at 11:49:21 AM PDT
> **To:** acolamussi@encinitas.gov
> **Subject: Fwd: Fox Point resident**
>
> Sent from my iPhone
>
> Begin forwarded message:
>
> > **From:** Brad Bosacki <brad.bosacki@gmail.com>
> > **Date:** April 8, 2020 at 12:24:46 AM PDT
> > **To:** brad.bosacki@gmail.com
> > **Subject: Fox Point resident**
> >
> > We have lived in Encinitas since 1972 and bought our home on Sidonia Ct. in 1983. Leucadia Blvd. used to dead end at Sidonia St. until Encinitas Ranch was developed and the road was extended through to El Camino Real. Although that was a huge change and disruption to our little neighborhood, we all eventually rolled with the change. We now are facing another dramatic change due to affordable housing demands on our city. We all voted against the change in zoning but unfortunately it appears the plan is moving forward. We are very concerned with a few components that would drastically impact the integrity of our neighborhood!
> > First, NO to Nolen Community traffic, especially the idea of an egress to Sidonia St. which would be a traffic nightmare and allow the possibility of parking by Agrihood residents and their guests on Sidonia St. (the plan shows there will not be enough parking within the development)

All access should be from Quail Garden Rd. to preserve the safety and integrity of our neighborhood.
Secondly, a wall needs to be built to separate Nolen Community and the Fox Point neighborhood for the benefit of both.
Please entertain these fairly simple and respectful requests in support of citizens who have been part of the foundation of our loved city, Encinitas

Respectfully,
Robert “Brad” Bosacki and Jane Liebelt
Sent from my iPhone

From: Deana Gay <dgay@encinitasca.gov>
Sent: Thursday, April 2, 2020 9:20 AM
To: Scott Vurbeff
Subject: FW: Fox Point Farm Development
Attachments: Fox Point Farm Development - Concerned Resident Comments.docx

Hi Scott,

Please see message and attachment from Christian Nelson.

Thank you,
Deana Gay

From: Christian Nelson <cdnelson@sandiego.edu>
Sent: Wednesday, April 1, 2020 3:58 PM
To: Deana Gay <dgay@encinitasca.gov>
Cc: Anna Colamussi <acolamussi@encinitasca.gov>; Roy Sapau <RSapau@encinitasca.gov>; Planning <planning@encinitasca.gov>; Erik Steenblock <esteenblock@encinitasca.gov>; Council Members <council@encinitasca.gov>
Subject: Fox Point Farm Development

[**NOTICE:** Caution: External Email]

Good afternoon,

My attached letter voices concerns my wife and I have regarding the subject line development project.

Thank you,

Christian D. Nelson
cdnelson@sandiego.edu
760-822-2307

Chris Nelson & Maeve Taaffe
1034 Guildford Ct.
Encinitas, CA 92024
(760) 822-2307

Roy Sapa'u
City Planner, Encinitas City Plans Department
505 S. Vulcan Ave Encinitas, CA 92024
planning@encinitasca.gov
P: (760) 633-2710

1 April 2020

Mr. Sapa'u,

My correspondence today is in reference to the planned development of the Fox Point Farms. By now your office has received numerous comments regarding various citizen concerns about the Fox Point Farms development and its impact upon the adjacent Fox Point community. Fox Point community residents have voiced their concerns to include building a continuous wall from the intersection of Sidonia St. and Leucadia Blvd. to the first private home on the East side of Sidonia heading North, no pedestrian access from Fox Point Farms onto Sidonia St., only a fire department ingress gate located on Sidonia for emergency vehicle access purposes, zoned parking for Fox Point community residents to ensure overflow parking doesn't inundate the nearest Fox Point community roads and residents, and I concur with all of these to ensure the long standing tranquil Fox Point community maintains it charm. A charm that is just one of many magnets within our city that compel people to want to live and work here. I am very concerned that charm will be eradicated, and our city turned into another lackless urban environment typical of Los Angeles urban sprawl.

My wife and I know the Fox Point Farm development is going to take place, and now is the time to ensure our concerns are noted and captured for the record. We want to voice pre-construction, construction, and post construction concerns:

- Pre-construction:
    - Maintain an open line of communication that keeps all Fox Point Community residents apprised of ongoing actions. The current code limitation of only including residents within 500' of the development is not a sound decision as outlined in the 2019-10-22 Citizens Participation Plan. The City has the discretion to include "other groups that the City feels should be notified," and those groups should include all residents of Fox Point community because of the traffic impact on the two ingress/egress routes into this community. This can be expanded to communities along Quail Gardens in both directions as traffic patterns will impact them also.

- Construction:
    - Construction vehicle ingress/egress should be limited to Quail Gardens as Sidonia St. is not a wide street and very tight at the intersection. Construction of other sites along

Leucadia Blvd. have proven to be a crystal ball into what to expect, i.e. traffic patterns (congestion, construction, supply, private vehicles of construction workers parked along roadways, work vehicles missing construction site and ending up in the residential neighborhood to find turnaround spots), construction trash (nails, screws, paper, wood scraps, and so on strewn about on the roads), dust, drainage concerns e.g. on Sidonia to the North towards end of street, trespassing, construction noise, controlled work hours during workdays and on weekends, and trespassing.

- Post:
    - One of the consistent trespassing issues on the North end of Sidonia St. is a public belief that access to Indian Canyon is in the public domain, the reality is individuals have to trespass on private property to gain access. The landowners have had to consistently pay for repairs as their fences and no trespassing signs are torn down. This will multiple when Fox Point Farms is populated and they assume easy access is their right to get into the canyon from Sidonia St.
    - If the Fox Point Farms through street connects Quail Gardens to Sidonia St. the daily throughput of resident traffic and traffic seeking to bypass the Quail Gardens and Leucadia Blvd. intersection will inundate the Fox Point community's two ingress/egress points. Drivers will become frustrated, drivers will increase vehicular speeds on the residential streets, accidents will occur and hopefully not at the expense of someone being injured or killed, especially a child.
    - Zoned parking is good, but only as good as its enforcement. I have seen one sheriff SUV in the neighborhood in the last 12 months, there may have been other visits, but this community is peaceful and that will change. Enforcement of zoned parking is only as good as its enforcement and needs to be swift and financially painful to deter its occurrence. The concern of Fox Point residential streets being used as overflow parking stems from a lack of available parking for the number of units planned for the Fox Point Farm development; the planners have calculated sufficient space for 1.86 cars per residential unit. Add to this vehicular count visitors, day laborers, farm equipment, overflow from Fox Point Farm and Ranch golf course planned events and it gets much worse.

As a residents of the Fox Point community, as citizens of the City of Encinitas, as local taxpayers, as local voters, my wife and I implore the city as it moves forward with this development, and those planned in other city communities, to not ignore or destroy the fabric that created Encinitas. Your job responsibilities are vast and sometimes difficult, but it is the job you have chosen to take on so please act consciously as this development moves forward.

Please ensure our concerns are noted for the record and distributed to the proper POCs as development continues to move forward.

Sincerely,

Chris Nelson

Scott Vurbeff
Environmental Project Manager
City of Encinitas

March 30, 2020

Dear Mr. Vurbeff,

This is regarding the proposed development of Fox Point Farms, which I understand is a Dramm and Echter property.

I live in Encinitas on 1010 Guildford Court, which connects to Sidonia Street (Foxpoint homes). Sidonia is directly across from Dramm and Ecter property under consideration for development. My husband and I bought this house in 1987. In 2001, he passed away from cancer at age 52. I have lived in this house for 33 years. I don't have any plans to move, unless my health status changes.

I have become apprehensive and anxious after hearing from my neighbors about the development of Fox Point Farms with Nolen Communities. My focus, as well as that of so many of my neighbors, is to keep my community, Fox Point, as a separate neighborhood from any of the development that occurs with Nolan properties.

Please consider doing the following regarding this development of land next to our Fox Point neighborhood:

- Any road access in and out of this new community should be to/from Quail Gardens Drive.
- It is essential to keep the two neighborhoods separate through the use of walls and landscaping.
- No parking should be allowed on the east side of Sidonia Street and only residents of Sidonia Street should be allowed to park on the west side of the street.

We are requesting that you consider following the layout of Ashbury Street in the Coral Cove Community off of Vulcan as a potential design model for Sidonia Street for the Dramm & Echter property.

It is important to myself and other homeowners in the Fox Point neighborhood that you keep each neighborhood separate. The new development should not be allowed road access to Sidonia Street at all, as it is not designed for the kind of massive traffic that would occur.

Please keep our existing Fox Point neighborhood separate and safe from additional traffic with the addition of the new development at the Dramm & Echter property. This has been done by City Planning Dept elsewhere and it can be done here as well.

Sincerely,

Christine Hayes
1010 Guildford Court, Encinitas

From: Laura Woodward <dalawoodward@gmail.com>
Sent: Monday, April 27, 2020 4:59 PM
To: Scott Vurbeff
Subject: Fox Point Farms EIR comments

Follow Up Flag: Follow up
Flag Status: Completed

[**NOTICE:** Caution: External Email]

Dear Scott
We reside at 827 Woodley Pl, Encinitas, CA 92024 directly across Leucadia Blvd. from the planned Fox Point Farms development and we have serious concerns about this project. Our biggest concerns are over increased traffic and parking, access from the development onto Sidonia St., having an alcohol serving restaurant in the neighborhood, drunk drivers, noise, and poisonous pesticide removal.
Leucadia Blvd has very heavy fast traffic with frequent backups that make it very difficult, and dangerous for us to get out of our street. To go west we have to cross 2 lanes of traffic in order to get in the left turn lane for a u-turn. This lane is already frequently backed up. Having access from Fox Point Farms onto Sidonia from all the additional cars will make the intersection even more congested, and make a dangerous situation even worse.
This high density project does not seem to have enough parking for all its residents and visitors, pushing the cars out into the neighborhood. The presence of public serving businesses such as the restaurant and farmers market will increase the traffic and the need for parking. This same issue created a problem in recent years on Seeman Drive in Encinitas. We feel the issue of overflow parking needs to be addressed.
The presence of an alcohol serving restaurant in the neighborhood is also of concern because of the danger of drunk driving on our streets, and the possibilty of noise from the public events. These issues should be addressed.
We are concerned about the clean up of hazardous waste, pesticides and herbicides deposited over years of greenhouse operations. The issue of protection for the neighborhoods during construction is of serious concern.

Thank You,

Davis and Laura Woodward

From: donnacarrmd@aol.com
Sent: Sunday, April 26, 2020 6:34 PM
To: Scott Vurbeff; productionandesign@gmail.com; loralynn8@gmail.com
Subject: Fox Point Farms
Attachments: Fox Point Farms.docx

Follow Up Flag: Follow up
Flag Status: Completed

[**NOTICE:** Caution: External Email]

Dear Mr. Verbeff:

Attached is a general letter that was forwarded to Brian Grover at Nolen Communities and to City Council. I would appreciate if you read this letter and I would like to add additional information in regard specifically to environmental impact. In general, this massive complex of high density housing will impact all our residents and the environment in an extremely NEGATIVE way! We all bought our properties with the understanding (BY LAW) that our neighboring greenhouses would be " AGRICULTURE IN PERPETUITY." Myself and most of our neighbors would NOT have purchased our property if we had known that City Council, with a "stroke of the pen", and without a care about our neighborhood, would just simply rezone it for high density housing and low income housing and also zoning for a restaurant. I have owned my property at 1201 Sidonia Street (at the north end of Sidonia) for 31 years. As a homeowner we rely on LAWS to govern our community and this is a violation of our property rights and our rights as a tax paying member of the Encinitas community. This horrible development plan will damage our neighborhood environment with traffic, noise pollution, dark sky pollution, chemicals, and air pollution, just to name a few of many concerns. This would devastate our local wildlife who have called this area home, including our bobcats, coyotes, hawks, skunks, deer (yes I have had deer on my property), possum, raccoon, rabbits, snakes and many other creatures that we coexist with. It also abuts Magdalena Ecke Park which is an open space reserve and harbors many of these animals. There are also many owls and the critically endangered California gnatcatcher and it is illegal to disturb their nesting grounds. This project seems designed to fill a low-income housing mandate and to provide a financial windfall to those involved. It is our hope that our existing community does not have to resort to legal avenues to mitigate this project. The latter would devastate our community and the air, and water, and sky that the residents and the wildlife depend on.

Most Sincerely:

Dr. Donna Carr
1201 Sidonia Street
DonnaCarrMD@aol.com
760-436-7836

To Whom it May Concern
RE- Fox Point Farms
Nolan Communities, LLC

This is a list of considerations that would make a terrible situation a bit better

1) There HAS to be NO access from this monstrous development along Sidonia Street. There MUST be a wall!
Otherwise,this would completely ruin our sense of community and make our homes intolerable to live in. A person already has to drive on the left side of the street when proceeding south, so as not to get slammed by cars cruising from St. Albans and Sidonia Court without even a hesitation at the "T" onto the road onto Sidonia Street. This has been dangerous for those of us who live on Sidonia Street since they rerouted all the Fox Point eastward traffic onto our then-quiet street because the persons who lived on Pasiflora didnt want the traffic light at their street, even though is Fox Point traffic! I and our adjacent houses are not even a part of this development, but get all the traffic. It seems like City Council does not care about our street's residents - EVER! Additionally, there would be ridiculous amounts of foot traffic on an already busy road. And of course, with this these pedestrians come an increasing number of people who trespass onto my property at the northern dead end of Sidonia St. thinking this is access to Indian Head Canyon park. It is private property, despite what Google Maps denote. Also, there will be wall -to-wall parking as the overflow will spill onto our street. And the last issue about the wall would be at least some mitigation of all the noise that will emanate from this "city" and its construction. As an aside, I requested an investigation regarding a stop sign on St. Albans Road at the T with Sidonia Street.

2) There should be a wall on the north side of the property that abuts Magdalena Ecke Park. I am sure without a wall, there will be people trespassing thru the gate onto my property from yet another side, trying to access Sidonia Street past my house and down my driveway. It would also disturb the wildlife including our resident bobcats that use the "open space" Magdalena Ecke park as home. This should be dedicated open space, as was the intention, when the park was formed. It might cut down on some of the noise that will permeate our quiet neighborhood.

3) There should not be ANY commercial properties. We do not need a restaurant in this area and I am sure once it has been changed to commercial, the next thing will be a 7 Eleven or other entity which will move in once the "local" restaurant has failed. It's just an added burden to the surrounding houses of more people, more traffic and MORE noise.

4) There should not be any "selling points" about access to Indian Head Canyon Park. There is NO public easement or access and NEVER has been, although the Parks Department and even members of the City Council seem to think so. We did an easement search when we purchased the 13 acres of my property in 1989 and there is NO SUCH EASEMENT! There is a municipal easement via a private road off my driveway that is for maintenance of the culvert at the bottom. The city keeps a lock on this non-pedestrian easement. The only time the city seems to acknowledge that this is private property is when they send me a FIRE Abatement notice each fall and I have to spend several thousand dollars to clear a firebreak. At that point the city seems clear that it is my property and my responsibility. I will have to get my attorney involved if there are any references to travel across my property to access parks.

5) The issue of drainage needs to be addressed. With any rain other and a drizzle, the water pours out of the driveway at Dramm and Echters and Sidonia turns into a torrent of rainwater, that makes pedestrian and automobile passage very difficult. This cause problems for the house at the south end of Sidonia Street and St. Albans drive and erodes my property. This water eventually drains into outgoing water with all its pollutants.

6) I think every problem should be addressed in regard to the residents who purchased all our homes with the assurance that this land would be agriculture of some manner per its zoning. With a stroke of the pen, this is negated and the project is under the influence of those with the "deep pockets", such as Mr. Echter and the developers.

Thank you for your attention to these matters and for ongoing cooperation.

Most Sincerely:

Dr. Donna Carr – Owner
1201 Sidonia Street
760-436-7836
DonnaCarrMD@aol.com

From: Douglas Shaw <douguitarshaw@pacbell.net>
Sent: Monday, April 27, 2020 2:08 PM
To: Scott Vurbeff
Subject: Comments for EIR re: Fox Point Farms development

Follow Up Flag: Follow up
Flag Status: Completed

[**NOTICE:** Caution: External Email]

Dear Scott,

I am writing to you to voice concerns I share with my neighbors over the proposed Fox Point Farms development adjacent to our neighborhood - MULTI-3524-2019, SUB-003526-2019, USE-003527-2019, DR-003528-2019, CDPNF-003529-2019.

My family has lived at 1185 Sidonia St. for the past 20 years, and on Passiflora Ave. before that since 1986. We have always enjoyed the peace and tranquility of our "semi-rural" neighborhood with its strong and historical agricultural influence. Many of us chose this neighborhood for those reasons. We see the proposed ingress/egress from Fox Point Farms onto Sidonia Street as a dangerous threat to our neighborhood's character, and equally or more important, it's **safety**. **We, the residents of the existing Fox Point neighborhood should not bear the impact of additional traffic, parking generated by the proposed Fox Point Farms development, nor other potential environmental repercussions.**

I, like most of my neighbors, have personally witnessed several serious auto accidents at the corner of Sidonia St. and Leucadia Blvd. Several of my neighbors have been involved in these accidents, some with serious injuries. Out of necessity for our safety, we all are extremely cautious when entering and exiting our neighborhood - whether turning onto Sidonia St. from Leucadia Blvd., or exiting our Fox Point neighborhood onto Leucadia Blvd. - especially when making the turn to travel east on Leucadia. Many cars travelling west on Leucadia Blvd. fail to see or pay attention to the light at Sidonia St., approach the intersection at higher than speed limit velocities, and either fail to stop or are unaware of the red light completely. I see from the City's "2nd Cycle Review Comments" that **there were 36 collisions at the corner of Quail Gardens Road and Leucadia Blvd. in the past 8 years. How many accidents have there been at the corner of Sidonia and Leucadia? Please include this in your studies and make this information to the public/our neighborhood. I'm sure the cumulative number will be eye-opening and should be a very serious concern related to the proposed development.**

If an ingress/egress from the Fox Point Farms development onto Sidonia St. were to be allowed, adding the number of daily vehicle trips generated from the 250 new homes projected in that development to our existing neighborhood's volume will both create an untenable log-jam at the Sidonia-Leucadia Blvd. intersection, but surely **lead to more accidents with potentially more injuries or casualties.**

Further, allowing egress onto Sidonia from Fox Point Farms would also lead to parking issues along Sidonia when spaces in the new development are not available, or simply out of proximity or convenience for residents or visitors. Potential noise generated from additional cars would also pose a quality of life issue for neighbors in Fox Point who currently enjoy quiet and tranquility.

Additional environmental concerns my family and neighbors have related to the Fox Point Farms development include:

- Grading and Drainage: Potential of stirring up/releasing toxic residue from chemicals and fertilizer used for years of flower growing in the current greenhouses.
    - Concerns for unhealthful odors and air-borne pollution during construction
    - Draining of toxic liquids into our existing neighborhood down Sidonia street, and potentially further downstream into Batiquitos Lagoon and the ocean.
- Impact/potential overload on sewer and drainage systems with the addition of 250 new homes in the vicinity.
- Impact of addition of 250 homes on existing gas, electric, water and communications infrastructure, including phone, TV, and Internet.
- Impact to the many species of wildlife that live adjacent (our home is at the north end of Sidonia St., at the edge of Indian Head Canyon) to our existing neighborhood, including bobcats, coyotes, hawks, skunks, deer , possum, raccoon, rabbits, snakes, owls, protected Gnat-catchers, and many other creatures that we coexist with.
- Noise pollution from the 250 new homes and associated vehicles, proposed restaurant and event area.
    - Our neighborhood has always enjoyed peace, quiet, and tranquility. How will the addition of the above mentioned developments effect our quality of life?

Here are my strong recommendations for changes to the development plan to help avoid the issues described above and protect our existing Fox Point neighborhood:

- **Do not include an egress from Fox Point Point Farms onto Sidonia St.**
    - If a second access road is required for emergency vehicle access, build that second entrance on Quail Gardens Road or Leucadia Blvd. where there would be no impact to existing residential neighborhoods.
- **Include in the Fox Point Farms plans the construction of a wall around all sides of the development** to completely separate the new development from the existing Fox Point neighborhood. This measure would stop all pedestrians and/or vehicles from access to Sidonia, and has worked well in other recent developments in our city.

I commend the efforts of the City and the developers to try to find desirable solutions to create low-income housing and accommodate state requirements. From what I have seen, the overall design of the Fox Point Farms is attractive and seems well-planned, **except as outlined above**. However, the integration into the existing neighborhood with major impacts to traffic flow and other existing infrastructure appears misguided, unfair and unacceptable.

I implore you, our planning commission, city council members, and Nolan Communities developers to **PLEASE pay heed** to the concerns outlined above that I know I share with my Fox Point neighbors. Find ways to eliminate dangerous and undesirable impacts to our existing neighborhoods - we should not pay the price of new development!

Thank you for considering and incorporating my input into the process of review of the proposed Fox Point Farms development.

Douglas Shaw

1185 Sidonia St.
760 525-6745

From: Douglas Shaw <douguitarshaw@pacbell.net>
Sent: Monday, April 27, 2020 5:50 PM
To: Scott Vurbeff
Subject: Additional Comments for EIR re: Fox Point Farms development

Follow Up Flag: Follow up
Flag Status: Completed

[**NOTICE:** Caution: External Email]

Scott,

As a follow up to my email from earlier today, I'd also like to call your attention to stated Goals and policies of the Circulation Element of the General Plan for Encinitas (and reiterated in comments provided by the City in the "2nd Review Cycle Comments", published April 17, 2020):

GOAL 2: The City will make every effort to develop a varied transportation system that is capable of serving both the existing population and future residents *while preserving community values and character.*

POLICY 2.3: Design the circulation system serving new development in such a way to minimize through traffic in all residential neighborhoods.

POLICY 2.4: When considering circulation patterns and standards, primary consideration will be given to the reservation of character and safety of existing residential neighborhoods. Where conflicts arise between convenience of motorists and neighborhood safety/community character preservation, the latter will have first priority.

Please take these guidelines into careful consideration along with input you have received from our existing neighborhood as you conduct your review of this proposal.

Thank you,

Douglas Shaw

Begin forwarded message:

From: Douglas Shaw <douguitarshaw@pacbell.net>
Subject: **Comments for EIR re: Fox Point Farms development**
Date: April 27, 2020 at 2:08:15 PM PDT
To: svurbeff@encinitasca.gov

Dear Scott,

I am writing to you to voice concerns I share with my neighbors over the proposed Fox Point Farms development adjacent to our neighborhood - MULTI-3524-2019, SUB-003526-2019, USE-003527-2019, DR-003528-2019, CDPNF-003529-2019.

My family has lived at 1185 Sidonia St. for the past 20 years, and on Passiflora Ave. before that since 1986. We have always enjoyed the peace and tranquility of our "semi-rural" neighborhood with its strong and historical agricultural influence. Many of us chose this neighborhood for those reasons. We see the proposed ingress/egress from Fox Point Farms onto Sidonia Street as a dangerous threat to our neighborhood's character, and equally or more important, it's **safety**. **We, the residents of the existing Fox Point neighborhood should not bear the impact of additional traffic, parking generated by the proposed Fox Point Farms development, nor other potential environmental repercussions.**

I, like most of my neighbors, have personally witnessed several serious auto accidents at the corner of Sidonia St. and Leucadia Blvd. Several of my neighbors have been involved in these accidents, some with serious injuries. Out of necessity for our safety, we all are extremely cautious when entering and exiting our neighborhood - whether turning onto Sidonia St. from Leucadia Blvd., or exiting our Fox Point neighborhood onto Leucadia Blvd. - especially when making the turn to travel east on Leucadia. Many cars travelling west on Leucadia Blvd. fail to see or pay attention to the light at Sidonia St., approach the intersection at higher than speed limit velocities, and either fail to stop or are unaware of the red light completely. I see from the City's "2nd Cycle Review Comments" that **there were 36 collisions at the corner of Quail Gardens Road and Leucadia Blvd. in the past 8 years. How many accidents have there been at the corner of Sidonia and Leucadia? Please include this in your studies and make this information to the public/our neighborhood. I'm sure the cumulative number will be eye-opening and should be a very serious concern related to the proposed development.**

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Further, allowing egress onto Sidonia from Fox Point Farms would also lead to parking issues along Sidonia when spaces in the new development are not available, or simply out of proximity or convenience for residents or visitors. Potential noise generated from additional cars would also pose a quality of life issue for neighbors in Fox Point who currently enjoy quiet and tranquility.

Additional environmental concerns my family and neighbors have related to the Fox Point Farms development include:

- Grading and Drainage: Potential of stirring up/releasing toxic residue from chemicals and fertilizer used for years of flower growing in the current greenhouses.
    - Concerns for unhealthful odors and air-borne pollution during construction
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- Impact of addition of 250 homes on existing gas, electric, water and communications infrastructure, including phone, TV, and Internet.
- Impact to the many species of wildlife that live adjacent (our home is at the north end of Sidonia St., at the edge of Indian Head Canyon) to our existing neighborhood, including bobcats, coyotes, hawks, skunks, deer , possum, raccoon, rabbits, snakes, owls, protected Gnat-catchers, and many other creatures that we coexist with.
- Noise pollution from the 250 new homes and associated vehicles, proposed restaurant and event area.
    - Our neighborhood has always enjoyed peace, quiet, and tranquility. How will the addition of the above mentioned developments effect our quality of life?

Here are my strong recommendations for changes to the development plan to help avoid the issues described above and protect our existing Fox Point neighborhood:

- **Do not include an egress from Fox Point Point Farms onto Sidonia St.**
    - If a second access road is required for emergency vehicle access, build that second entrance on Quail Gardens Road or Leucadia Blvd. where there would be no impact to existing residential neighborhoods.
- **Include in the Fox Point Farms plans the construction of a wall around all sides of the development** to completely separate the new development from the existing Fox Point neighborhood. This measure would stop all pedestrians and/or vehicles from access to Sidonia, and has worked well in other recent developments in our city.

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I implore you, our planning commission, city council members, and Nolan Communities developers to **PLEASE pay heed** to the concerns outlined above that I know I share with my Fox Point neighbors. Find ways to eliminate dangerous and undesirable impacts to our existing neighborhoods - we should not pay the price of new development!

Thank you for considering and incorporating my input into the process of review of the proposed Fox Point Farms development.

Douglas Shaw
1185 Sidonia St.
760 525-6745

From: Drew Johnson <captain_drew@reagan.com>
Sent: Monday, April 13, 2020 1:41 PM
To: Scott Vurbeff; Anna Colamussi
Subject: Fox Point Farms Project

Follow Up Flag: Follow up
Flag Status: Flagged

[**NOTICE:** Caution: External Email]

Dear Mr. Verbeff & Ms. Colamussi,

This note is in response to the planned "Fox Point Farms Project".

We have owned our property in the Fox Point Subdivision since 1977 and quite frankly, building the proposed development would be akin to dropping a nuclear bomb on our neighborhood!

It was an ideal neighborhood to raise our kids in. It is quiet, with virtually NO "traffic" and safe. The proposed development would completely destroy all of that! In the very least, it would make our property values go down!

The proposed "exit" onto Sidonia is especially grievous! It would ensure a heavy flow of vehicles down Sidonia onto St. Albans Dr. and Passiflora, to access Leucadia Blvd.

Said 'traffic' would bring noise, pollution and make the neighborhood FAR less 'safe' than it is now!

I know you have likely received a large negative response from our neighbors, as they have shown me some of them. I will keep mine brief, as I know others have expressed 'their' concerns already. Please know, that virtually NO ONE, who is aware of this project, is in favor of it.

You will fail in your duty as a "public servant" if you allow these powerful "interests" to destroy our neighborhood!

--

Semper Vigilo, Fortis, Paratus et Fidelis!
One Nation Under God; In God We Trust & Very Warm Regards,
--
Drew Johnson
Captain - FedEx-Retired
US Navy Reserve-Retired
Presidentially Appointed Vigilante

From: Elyce Nissinoff <enissinoff@gmail.com>
Sent: Monday, April 6, 2020 11:23 AM
To: Scott Vurbeff
Cc: Anna Colamussi
Subject: Fox point

Follow Up Flag: Follow up
Flag Status: Flagged

[NOTICE: Caution: External Email]

I am against the Fox Point development. My main concern is the traffic and potential for more traffic accidents at the corner of Leucadia and Quail Gardens. I have lived on Lauren Court for 10 years. There are daily accidents in the middle of this intersection.
There needs to be a green arrow for traffic traveling north and south. Whether I am in my car, riding a bike or walking my dog, drivers are oblivious and think the green light means they can turn Left. I have come close to being personally hit by a car , whether walking, biking or driving. I have written and called on this matter several times. No one responds or even looks into the number of reported accidents.
The problem will only get worse as you add more residences to the north west corner of this intersection.
The area has been designated for agriculture. Encinitas' city problem for low income housing should not be put on land designated for agriculture.
Should the project be approved, there should be an entrance/exit on Sidonia st as well as Quail Gardens. This would help with the construction and the potential for accidents at the Leucadia/Quail Gardens intersection.
On another note, when the property was up for a vote on cannabis, people voted it down. They did not know the housing development would come next. I think most people would now vote for the cannabis instead of the housing. That is agricultural. They were not told the property could become residential.

Please fix the intersection before moving forward on any future developments.
If there must be a development-put an entrance/exit on Sidonia.
Sincerely,
Elyce Nissinoff

2545532900
CASE #MULTI-3524-2019
CURRENT RESIDENT
1128 SIDONIA ST A
ENCINITAS, CA 92024

FROM: City of Encinitas, Planning Division
505 S. Vulcan Avenue
Encinitas, California 92024

PROJECT TITLE: Fox Point Fa

PROJECT APPLICANT: Nolen Comm

PROJECT LOCATION: 1150 Quail G
County Asse

PROJECT CASE NUMBER: MULTI-3524-
DR-3528-201

Pursuant to the California Environmental Quality Ac
Preparation (NOP) of an Environmental Impact Re
project may require approvals from public agencies
of the EIR based on your agency's purview of the pr
other interested persons. Comments received in res
City in determining the scope of the EIR.

PROJECT DESCRIPTION AND LIKELY ENVIRON

Sent from my iPad

From: Erin Hoherd <erinhoherd@gmail.com>
Sent: Thursday, April 9, 2020 4:07 PM
To: Scott Vurbeff; Anna Colamussi
Subject: NO to Foxpoint Farms

[**NOTICE:** Caution: External Email]

To whom it may concern,
I strongly urge you not to move forward with the Fox Point Farms project. The proposed housing development would have tremendous negative impact on the Fox Point neighborhood. Our community has serious and legitimate concerns with increased traffic, a lack of adequate parking within the Farms, pollution (both noise and debris) for 2+ years during construction, and most importantly, a lesser quality of life for the current Fox Point residents.
When are developers going to realize that enough is enough and we are ruining everything that was once so great about Encinitas?
Thank you,
Erin Hoherd
Fox Point resident

From: joe williams <williajt@gmail.com>
Sent: Friday, April 10, 2020 6:41 PM
To: Scott Vurbeff; Anna Colamussi; Council Members
Subject: Fox Point Farms project concerns

Follow Up Flag: Follow up
Flag Status: Flagged

[**NOTICE:** Caution: External Email]

Scott Vurbeff,

We're writing this letter to highlight some serious concerns our family has about the Fox Point Farms development project.

We've been home owners on St. Albans Drive in Fox Point for close to 30 years. We started raising our family before the Leucadia Blvd raceway was opened up to El Camino Real so we've seen many changes not only within the city but in Fox Point as well. So, I'll start with our most troubling issue with the Fox Point Farms (FPF) project.

Traffic

We have 109 homes today in Fox Point with entry into and out of our development on Sidonia or Passiflora. Over the years as traffic on Leucadia Blvd raceway has increased it gets backed up a bit during rush hour and has become somewhat risky with west bound speeding vehicles blowing through the Sidonia traffic light at all hours of the day. Everyone in our family has had close calls there and many of us expect there will be a fatality someday from someone getting t-boned. With 250 new homes it's not going to get any better. So, why make the situation worse?

Expanding Fox Point with an additional 250 homes

Frankly we're just not sure what to say about the proposal to have FPF enter and exit their development onto Sidonia. It is just mindboggling. How can any reasonable person consider that acceptable and expect it to work? Surly you can expect an uproar from the 109 families in this development. There's just no way

that additonal traffic will just use Sidonia to get in and out onto the raceway. And even if they did it will create an unacceptable burden for the current residents. Today we use both Sidonia and Passiflora and those 250 residents will as well. Sure, there's entry/exit for them on Quail Gardens but why would you use it if you want quick westbound assess to the beaches or the freeway?

Along with the additional traffic we'll see overflow street parking be a problem on Sidonia and surrounding streets as well. The additional foot traffic is not wanted either. And of course, we're concerned about crime as well.

Since other developments have been built in Encinitas next to existing communities with a wall separation that's what we want to see here as well. Not a fence or something that will look like crap in a few years but a high wall along the entire west side of FPF with no street or pedestrian assess to Fox Point

Soil Quality

Many years ago, I had a long conversation with the Echter care taker who lived in the farm house on the corner of Leucadia Blvd and Sidonia. He told me when the Encinitas train station was located north of Encinitas Blvd there was a dump on the east side of Vulcan Ave where Cottonwood Creek Park is located. As part of the area redevelopment the dump was excavated and the contents relocated to what is now the Echter property just to the northwest of the home located on the west side of Quail Gardens. Of course, this is second hand information but it does sound plausible and could hamper the farm to table growing area.

Aesthetics

We also understand there is a plan to put up a 20-foot-high water tower on the corner of Sidonia and Leucadia. While we believe the current one on the golf course looks great, we just don't believe it's something we want to see on the corner of our development.

Thanks for listening.

Joe and Peggy Williams
1017 St. Albans Dr.

Dear Mr Vurbeff

I am writing to you in regard to the issued notice of Preparation (NOP) for the proposed development of 250 Homes and Agricultural entertainment on the Dramm & Echter property, Fox Point Farms.

I have lived in Encinitas, with my son, daughter and Fiancé at 1033 Guildford Court, 100 yards from Dramm & Echter for the last 9 years and gone through many proposals for this agricultural plot of land that somehow managed to get rezoned

My Fiancé and I, along with many Fox Point residents, have major concerns regarding the proposed "Fox Point Farms" project. I will list our concerns below:

1. **Keep the neighborhoods separate.** Other developments in Encinitas have kept new and old developments separate without traffic impact on the existing neighborhood.
2. **Noise levels.** I have spoken with Brian Grover from Nolen properties and asked for a wall On Sidonia street to mitigate noise levels from Fox Point farms. He said he has no intention of building a block wall and this was due to the City of Encinitas not wanting developments with Block walls around them, they only a boundary fence. Is this correct?
3. **Soils.** How can they grow an organic Agricultural farm after years of using pesticides in the soil?
4. **Soils.** Was this parcel of land an old Landfill?
5. **Air Quality** What is the air quality for surrounding residents going to be like when they start construction with all the old pesticides and old land fill material being unearthed?

6. **Aesthetics .** Why are they 20 foot high Billboards under the disguise as water towers? These are not an Architectural feature and are not aesthetically pleasing.

7. **Cultural resources** Why do you need to build another restaurant when there is one at the golf course 100yds away that has not worked and is open to the public? We have neighbors in Fox point that have ran restaurants for 40 years and they all agree the location will not work.

8. **Traffic.** We want to stop this type of traffic not increase it and discourage all overflow traffic from the proposed project guest and entertainment sites coming into our neighborhood and changing the character and quality of our lives.

9. **Traffic**
   I have been blindsided in my car twice exiting Guildford Court on to Sidonia Street and my fiancé has had her car totaled on Sidonia Street turning from Leucadia Blvd. My son has had also had egress issues in his car from Guildford court so with what you are proposing is ludicrous and dangerous for us residents of Fox Run.

10. We do not want an opening on Sidonia street so that Fox Point Farms can use our neighborhood for overflow parking due to the restaurant and a limited parking they have for the house and apartments. We also do not want our neighborhood having a new influx of traffic and endangering our streets and children

So In conclusion, I want to see both neighborhoods separate with a sold wall along Sidonia street with no car or pedestrian access. This has been provided at another development that Bob Echeter also owned on Vulcan and Ashbury at Coral Cove communities built by Shea homes.

We don't want 20 foot high Billboards (Watertowers)
We don't want impact of cars or Fox farms residents parking in our neighborhood.

We don't want Noise issues, Gas emissions, Air quality compromised, Biological particles in our air, Water quality effected ETC due to Fox Point farms construction.

Yours Sincerely

Joe Boyle

100 Guildford court

619-379-524

April 13, 2020

Dear Mr. Vurbeff, Environmental Project Manager

This letter is in response to the Notice of Preparation of a Draft Environmental impact Report for the Fox Point Farms project.

I have been a Fox Point property owner since 1979. My husband and I were drawn to the area because of its quiet, rural feel. It is Encinitas at its best.

Concerns and Recommendations:

- I am one of the owners who wasn't notified by the Planning Department of the proposed project because I was outside the minimal limit for notification—Everyone in Fox Point will be adversely affected by the very high density and location of the proposed project.
- I am concerned that the chemicals used on the 50+ year old working farm are hazardous to the health of Fox Point homeowners. When the construction starts, machinery will create dust filled with debris. I am also concerned about the people who may plant food gardens on their property and possibly in the communal garden. I have always heard that plants pull nutrients from the soil. New residents will be eating oil, fertilizers and pesticides.
- The project has obviously been designed to maximize income. The proposal seems to indicate that each unit will be given 2 parking spots (tandem). Many families have more than 2 cars. I could not find an area on the plans that would accommodate that many cars. What about guest parking? The area around the recreation center and other common areas should not be counted on to take care of resident overflow parking.
- The farm area on the plans does not indicate where farm equipment, materials, supplies, worker's cars and other necessary items would be stored.
- Fox Point residents are concerned that the project will not be self-contained. Cars from the project will likely leave using the Sidonia exit. Cars backed up waiting for the street light on Leucadia Blvd. will likely turn right on Sidonia and go down to St Albans St. to get to Passiflora, thus having a quicker exit onto Leucadia Blvd. The result being a huge increase in traffic count through Fox Point.
- Another concern regarding the project not being self-contained is the need for additional security for Fox Point properties.
- Reduced quality of life during the years it will take to complete a massive project like this is a major concern. Noise, contaminated dust and increased traffic are just a few of the nuisances Fox Point residents are dreading.

- The 20 feet high billboard water tower signs are atrocious. They are in NO way an "architectural feature". They are **For Sale** signs. Trying to tweak the city's sign ordinance for this developer only serves to insult a stable community who has paid taxes to Encinitas for 40+ years.
- Native plants and wildlife need to be protected.
- Although I hate the idea, a tall wall surrounding Fox Point Farms with emergency only egress off of Sidonia (preferably not Sidonia) should be built and maintained by the builder and subsequent HOA. Plants should be planted in front of the wall to dampen the harshness of the wall, also maintained by developer and HOA.
- No pedestrian access to Sidonia should be allowed.
- Emergency (gated and locked) egress only on Sidonia side
- Overall density of project should be reconsidered. The traffic count on Leucadia Blvd is already very high. Several of my neighbors have either had accidents or had multiple close calls when they entered Leucadia Blvd from Sidonia at the traffic light.

From my perspective, this project has not been well thought out. The density is too high. It does not fit the feel/scope of the neighborhood, and it will add nothing but ill will.

It appears that the city of Encinitas is caught in the middle of a conflict between quality of life and the state's mandate to increase market value and low income housing. I believe we could all agree that the density of this project is not good for Encinitas and it is not the direction this city should be moving.

Thank you for your consideration of these matters. Quality of life, including the safety issues noted are of upmost importance.

With Kind Regards,

Kathryn Johnson

Kathryn Johnson
KJohnson.Properties@yahoo.com
858-361-4827
Fox Point Property Owner 40+ years

From: KimElaine Zirpolo <productionandesign@gmail.com>
Sent: Thursday, April 2, 2020 3:53 PM
To: Tony Kranz; Scott Vurbeff; Kathy Hollywood; Joe Mosca; Jody Hubbard; Catherine Blakespear; Kellie Shay Hinze
Subject: Private property not an easement

[**NOTICE:** Caution: External Email]

Hello ,

My name is KimElaine Zirpolo . I live at 1201 B Sidonia st . I am in the guest house . Donna Carr owns the property we live on .

I am sending you the property on the e zoning map .

- this is not an easement it is private property, please do not advertise to your new community that this is accessible .

- the city can come on the property to clean the " basin" that exists and we cooperate .

- we want a solid fence or wall to separate the community you are building from our back yard . Please look at the property line. You can clearly see where the property comes up to Fox Point Farms .

- we would like the fence/ wall to be built before the construction .

- please tell people that they can access Fox Basin from Quail gardens Rd , that is where they can enter without trespassing on the property .

- please don't make the trail from Sidonia be a selling point .

Sincerely ,
KimElaine Zirpolo

https://ezoning.encinitasca.gov/index.html

From: KimElaine Zirpolo <productionandesign@gmail.com>
Sent: Tuesday, March 31, 2020 1:11 PM
To: Scott Vurbeff; Catherine Blakespear; Kellie Shay Hinze; Kathy Hollywood; Tony Kranz; Joe Mosca; Jody Hubbard; Karen Brust
Subject: FOX POINT FARMS

[**NOTICE:** Caution: External Email]

Hello,

My name is KimElaine Zirpolo and I live at 1201 Sidonia street .

The property I live on abuts the community that is being proposed.

I oppose the 250 units being built , The noise and debris from building will hurt us directly. I wont even be able to open our windows of my home as i am asthmatic . Anything in the dirt you dig up can have an effect on my health, as I also have Aspergillosis . So if I inhale mold spores I get very sick.

Environmentally once your digging on an agricultural site, that any chemical they used on the plants and flowers will be toxic to us.

I believe we should have been the home that was notified that you were going to construct a high density community at our back door.

We deal with trespassing here often and with the building of this community , we will be inundated with folks trying to get to the basin to hike.

Our street as well will take on too many vehicles with the ability to come onto Sidonia and disrupt every day life.

Kids ride bikes and skateboard and play here , it will no longer be safe for them.

The congestion on Leucadia blvd will be inevitable as it is congested as we speak .
The light at Leucadia/ Sidonia is very dangerous and often people do not see the red light and its down right scary.

The noise from such a large community that outnumbers the homes we have here presently will be awful . Combined with a restaurant and event space. THIS WILL ABUT OUR HOUSE .

Please I beg you to lower the amount of homes going in. 250 is an astronomical number for such a small neighborhood.

We need a wall around the entire community , even before construction as I will not be able to open my windows of my home.

I have no idea why you would destroy a neighborhood .

We are tax payers and voters and you just didn't care to tell us this was happening.

I oppose Fox Point Farms and I will continue to erect signs to let neighbors know that this was just swept under the rug so we could not fight the building of this community.

Sincerely,
KimElaine Zirpolo

April 21, 2020

To: Scott Vurbeff, Environmental Project Manager, City of Encinitas
Anna Colamussi, Principal Planner, City of Encinitas

Re: Comments on Fox Point Farms Project

Objections by Lauren Ct neighbors to the traffic aspects of the Fox Farms Agrihood

We object to degrading the usability of Quail Gardens Drive with excessive traffic. Quail Gardens Drive cannot be the only access to and from the Fox Farms agrihood. That would bottleneck the Quail Gardens/Leucadia Blvd intersection with unsustainable traffic volume, and would cause pollution, delay, and aesthetic degradation. The new traffic volume must be shared equitably and *not funneled entirely onto Quail Gardens Drive.*

- There must be a daily entrance/exit on Sidonia Ave.
- Alternatively, a separate entrance on Leucadia Blvd.
- Alternatively, a restriction on the number of new vehicles permitted in the development.

1. We live on Lauren Ct, which is reached via Quail Gardens Drive. Our street is the nearest residential street to the development, going north, and the first left after passing the site, about a third of a mile from the Dram & Echter entrance. A number of the homes on Lauren Ct look directly at the development site from their back yards.

2. We therefore have a strong interest in the traffic bottlenecks that could arise from the Fox Farms agrihood. Quail Gardens Drive is our only direct access to Leucadia Boulevard. If the Quail Gardens/Leucadia Blvd. intersection were to be blocked or bottlenecked, our only option to reach the same point is driving over two miles in the other direction via Saxony Road, which means going well over six miles to shop at, for example, the Stater Bros. food store in Encinitas Ranch Center and return home.

3. For these reasons we have *repeatedly* asked to be informed of proceedings in this matter. We signed the sheets for that purpose at the open meeting at City Hall, and we have registered by other means. However, we only found out about this comment period by accident and received no notice whatsoever. You must fix this problem. It is unjust and it makes us feel we are being intentionally steam-rollered.

4. The proposed 250 units will generate a large amount of extra traffic and it must be minimized and equitably distributed. Each unit will have a vehicle and many will have more than one, so the number of residents' vehicles will be at least 375-400 (the plan shows 404 resident spaces). The residents' guests also have spaces set aside (the plan shows 73 spaces exclusively for guests, which will also be used for extra resident vehicles). At rush hours, a

large number will be trying to exit onto Leucadia Blvd or go north on Quail Gardens. Also, a public restaurant and public event amenities will bring in hundreds more vehicles (the plan shows 84 restaurant spaces). It is inconceivable that this volume can be handled solely at the Quail Gardens/Leucadia intersection without unreasonable delays.

5. That would be environmentally dreadful. Hundreds of vehicles idling to await a turn at the light, residents driving miles out of the way just to go shopping, backups on Leucadia Blvd, and the aesthetic impact of the "Orange-County-ification" caused by unrelenting dense traffic that destroys the quasi-open space of the area and the walkability. It is also clearly unsafe because the density and lack of alternative access would impede fire and emergency vehicles.

6. We are not opposed to the development per se. We acknowledge the need for affordable housing. We are opposed to putting the entire burden of extra traffic unreasonably on us and our neighbors.

    a. If the density of the development were reduced from 250 units to, say, 150, that would reduce traffic.
    b. If the density is not reduced, there cannot be approval of Quail Gardens Dr. as the only daily access to the site. There must be a daily entrance on Sidonia or on Leucadia.
    c. Also, there should be a requirement of only 100 new vehicles in the development, which would force using carpools, public transportation, biking, and walking, all of which are environmentally better.

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Derek and Judith Harris
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Dr. Kristopher and Ms. Nicola (Gurwith) Johnson
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Dr. Marc Gurwith and Mrs. Dorothy Gurwith
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Bernard Zacharias and Nancy Hamzey
1427 Lauren Ct.
Encinitas, Ca 92024
nhamzey@cox.net 760-436-0718
zzacharias@cox.net

From: Loralynn <loralynn8@gmail.com>
Sent: Sunday, April 26, 2020 8:48 PM
To: Scott Vurbeff
Subject: Fox Point Farms project

Follow Up Flag: Follow up
Flag Status: Completed

[**NOTICE:** Caution: External Email]

Dear Mr. Vurbeff, Environmental Project Manager

This is a follow up from our previous letter. In response to the Notice of Preparation of a Draft Environmental Impact Report for the Fox Point Farms project.

As a resident of Fox Point on the northern end of Sidonia St, we are very concerned about the north end of the project's proposed agricultural field/farm area. We feel that the wall/fence surrounding this area as well as along Sidonia St should be a more than the 3 ft post and cable as on their current conceptual design. We are also aware that the developer is completely against a solid block or concrete wall design. A minimum 5 ft fence of an architectural mesh design or some similar product that would not permit pedestrians and animals to easily pass is necessary.

Environmentally a mostly solid 5ft fence will protect the ecosystem of wildlife and plants on the outside from walkers and dogs tempted to leave the trail. There is no place to further exit the area if one leaves the trail.

A mostly solid 5ft fence will protect the wildlife from encroaching into the "farming area". The bobcats, snakes, rodents, squirrels, gophers, skunks, and other local wildlife are not welcome guests of agriculture, but still need to be protected to ensure a healthy ecosystem in the designated open space.

A mostly solid 5ft fence with landscaping might also mitigate any chemical or pesticide drift from the agriculture to surrounding land. Even if it is planned as an "organic farm", I know organic does NOT mean pesticide/chemical free. Can the ag area be required to be pesticide free from an environmental concern on surrounding areas?

A mostly solid 5ft fence/wall should also be required in the design of the project along Sidona St and around the north end for environmental protections on several levels and thus override any aesthetic design ideas of a post and cable fence. Please request that Nolen Communities make the right choice on this issue.

We are encouraging you to review the concerns and comments of surrounding residences and act accordingly to mitigate the negative effects this project will impose on the existing neighborhoods.

Thank you and Regards,

Loralynn and Dave Sheeron
1171 Sidonia St
Encinitas, CA

Loralynn8@gmail.com

From: Loralynn <loralynn8@gmail.com>
Sent: Wednesday, April 8, 2020 12:25 PM
To: Scott Vurbeff
Subject: Fox Point Farms project

Follow Up Flag: Follow up
Flag Status: Flagged

[**NOTICE:** Caution: External Email]

Dear Mr. Vurbeff, Environmental Project Manager

In response to the Notice of Preparation of a Draft Environmental Impact Report for the Fox Point Farms project.

As a residence of Fox Point since 1995, we are very concerned about the new proposed Fox Point Farms development. For the new high density Fox Point Farms housing development to be a good neighbor, it should be self contained and NOT have any need to spread to surrounding neighborhoods for overflow parking or to make our neighborhood streets into a hazardous busy thoroughfare.

We live on the north end of the development on Sidonia St. To keep the development self contained, we would want a fence/wall to continue around the trail by the agriculture field. There is no place to further exit the area if one leaves the proposed trails. Keep the people and dogs on the trail and do not provide the temptation to leave. The wildlife and native plants outside the trail area need to be safeguarded.

It should also be important for the agriculture area to keep out and protect the wildlife in their own space. We have coyotes, bobcats, squirrels, birds of prey, rodents, snakes, roadrunners, possums, raccoons, owls, quail, among other species and native plants that need a safe place to live without humans and dogs disturbing their space.

The proposed access onto Sidonia Street is also a major issue for many residence of Fox Point, PLEASE have this as a fire/emergency exit ONLY and not a public exit. We would like the plans to include a wall along the Sidonia St side to keep any and all car or pedestrian traffic from invading our neighborhood. This is extremely important to those of us living on Sidonia. We wish to minimize the impact (noise, safety, & security concerns) and those of additional vehicles on Sidonia, St Albans, and Passifora.

We DO NOT want the overflow parking to end up in our neighborhood either. The Fox Point Farms needs to be more realistic on their parking situation and not just quote the code minimum. Our neighborhood does not want to become a parking lot for other areas. Increase in car traffic in Fox Point will add unwanted noise pollution and make our streets more dangerous.

The intersection at Sidonia and Leucadia Blvd is already quite dangerous. There are numerous accidents when the east/west cars run the red light, some quite serious. I am not sure how one would lower the

accident rate at this intersection, but options should be investigated, before Leucadia Blvd gets more congested.

To alleviate some of the traffic on Leucadia Blvd, trips from the proposed development could possibly be directed north to Quail Gardens Dr and then to La Costa Blvd instead of Leucadia Blvd.

Currently during heavy rains, the greenhouse property runoff on the north end often runs right through and floods our yard. It is not completely clear if the "agriculture area" is going to be open fields or greenhouses, however drainage for the area should be reviewed. We do not want our yard continued to be flooded during heavy rain. Is it know if the "agricultural area" is planned as greenhouse or fields?

The proposed 20 ft water tower sign on the street corners is not aesthetically in line with the area. I would think the design and size is already against current city codes and this eyesore hopefully would not be permitted.

We are encouraging you to review the concerns and comments of surrounding residences and act accordingly to mitigate the negative effects this project will impose on the existing neighborhoods.

Thank you and Regards,

Loralynn and Dave Sheeron
1171 Sidonia St
Encinitas, CA

loralynn8@gmail.com

From: cindy shopper <cindyshopper1@hotmail.com>
Sent: Thursday, April 2, 2020 5:15 PM
To: Scott Vurbeff
Cc: Council Members
Subject: Fox Point High Density
Attachments: TowerTank.jpg

[**NOTICE:** Caution: External Email]
Dear Mr Vurbeff,

I am the original owner of property in Fox Point and the only original owner on my block Sidonia Street. I raised my two children here, one who remains in Encinitas.

Traffic:The city wants to put high density housing across the street and dump the new traffic on a residential street, Sidonia St. Sidonia Street started as a cul-de-sac next to the Ecke Ranch with farm animals and lots of open space. Now it is the main entrance to Fox Point. Initially, the extra wide Passiflora was the only entry/exit. A member of the city government who lived on Passiflora (and later moved) was instrumental in getting a traffic signal on Sidonia and narrowing the entrance to Passiflora. We were assured Sidonia St would never be a busy street. Several times a day I am unable to back out of my driveway because of the line of cars waiting for the traffic signal to turn green. Imagine now 50 cars coming out of the high density development onto Sidonia St. Not only would the residents on Sidonia be trapped, but no one coming from a connector street would be able to exit. The next group of cars coming from the new development would go onto Passiflora causing the residents on Passiflora to be trapped as well as stopping all Fox Point residents from exiting on the connector streets to Passiflora. Sidonia St was never designed to handle the traffic in the first place. Fox Point is an older community. If a high density neighborhood with very mobile young families dumps traffic onto it, many seniors will be in danger being unable to drive away. Even if a nice low density project were built, the residents of Fox Point would be trapped by more traffic.

Tower: In the current plans there would be a promotional billboard in the shape of a water tank located directly outside my master bedroom on Sidonia Street according to the plans submitted by Nolen Communities. Why does this project need two promotional "water towers"? Are those billboards even legal? The tank should only be placed on Quail Gardens. It is not attractive and looks like a cell tower which I suspect will be its true use. Why not restore the current yellow house as an historic landmark? Or have some type of flower display showing our heritage (bromeliads, poinsettias, ferns, ...). I once talked to the landscape architect who designed Leucadia Blvd. He designs like a composer or an artist. He did a beautiful work of art. Why not put in beautiful landscape to blend into the original design?

Crime: On June 23, 2019 at 1am a young male tried to break into my home by breaking or damaging several windows. He was caught. Police case #19131758. A neighbor believed he came from a rental house on Sidonia St. I suspect the same thing. I asked if there were any

Christian policemen there. One responded. I gave him a CD which has interviews of people who had encountered people from a group calling themselves "the dark side". Only one other owner lives on my street. Recently on 3/18/2020 someone in my backyard was banging on the wall just after midnight. My security lights and chimes did not come on. This was a sophisticated criminal. I opened the window and they stopped. They came back a half hour later and did the same thing. There was no damage. A few weeks prior I had a sprinkler that spewed water straight up into the air and several drip lines were broken. A stepping stone propped up a pop-up sprinkler damaging the spring. A drain cover was removed and the sock taken out. My irrigation repairman said the sprinkler had been cut off. Adding more renters will increase the crime.

Our main goal for Fox Point as a community is to maintain its property values, to keep it as its own community for a “good place to raise children", and to therefore, limit traffic to our streets.

Please consider emulating the design of Ashbury Street (Coral Cove Community) off Vulcan as an example of a design for Fox Point as it pertains to the Dramm & Echter property development.

All traffic access in and out of Coral Cove enters and exits from Coral Cove Way. Please do the same for Fox Point with entry and exit for the new high density development only off Quails Garden Drive. 2) There should not be pedestrian access, just like the City did on Ashbury Street. 3) Please separate the two neighborhoods by creating a wall and landscaping as seen on Ashbury street for the East side of Sidonia Street adjacent Fox Point Farms project. 4 Please add No Parking signs on Sidonia Street East Side, like the City did on Ashbury Street and Seeman Drive. 5) Please add Resident Permitted Parking Only on Sidonia Street West side of street and Guilford Court. Please keep both neighborhoods separate. 6) Please do not put a tower on the corner of Sidonia St and Leucadia Blvd.

Thank you,

Lucinda Hansen
1104 Sidonia St
Encinitas, CA 92024

cindyshopper1@hotmail.com

From: Mia Marinos <mmarinos3@yahoo.com>
Sent: Thursday, April 23, 2020 8:18 PM
To: Scott Vurbeff
Cc: Anna Colamussi
Subject: No to Nolen Communities Agrihood
Attachments: Nolen communities appeal_mam.docx

Follow Up Flag: Follow up
Flag Status: Completed

[**NOTICE:** Caution: External Email]

Good evening Scott Vurbeff and Anna Colamussi,

Attached is my letter of appeal for the Nolen Communities Agrihood. Please ready with thoughtful and meaningful intention. Thank you!

Mia Marinos

To whom it may concern,

I am a current resident on Oldham Court, a few blocks west of Dramm & Echter property. I am writing to express my concerns about the Agrihood that Nolen Communities is planning to build. I have been a La Costa/Encinitas resident for the past 30 years and have been around long enough to see the changes that have been happening in this area. As an environmental advocate and firm supporter of keeping nature wild, it goes without saying that cramming 250 residential units into this space is not only overly zealous but the amount of traffic it would create would be horrendous and clearly unnecessary.

Seeing the toll that new businesses, neighborhoods, apartment communities, etc. has taken on the few open areas we have left in this small community is disastrous. The wildlife are running out of natural space. The increased amount of foot traffic onto these preexisting open spaces, especially next to Dramm & Echter, will only have a deleterious and harmful effect on these pristine open spaces. Many of us who reside in the immediate neighborhood would be devastated to see the increased amount of people swarming these areas eliminating our ability to enjoy the tranquil and aesthetic value that this open space provides.

I do believe that having community, especially one that is aligned with the values of fresh, organic gardening is important to all. Already there has been so much

disruption of open space that we don't need to contribute any longer to the overgrowth of Encinitas by adding bodies and cars to a space that naturally won't allow it.

Looking through the lens of this current pandemic, I believe it goes without saying that when human influence is at a minimum, the wildlife of this Earth begins to reclaim the spaces they have occupied long before humans were in existence. Building this grandiose "community" would be the biggest folly this residential and open area would endure. There is already too much development. I would keep the land as it is meant to be; free and wild, or with a very minimal amount of impact and development.

I truly appreciate your consideration in this highly sensitive and important issue.

Sincerely,

Mia Marinos

To whom it may concern,

I am a current resident on Oldham Court, a few blocks west of Dramm & Echter property. I am writing to express my concerns about the Agrihood that Nolen Communities is planning to build. I have been a La Costa/Encinitas resident for the past 30 years and have been around long enough to see the changes that have been happening in this area. As an environmental advocate and firm supporter of keeping nature wild, it goes without saying that cramming 250 residential units into this space is not only overly zealous but the amount of traffic it would create would be horrendous and clearly unnecessary.

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I truly appreciate your consideration in this highly sensitive and important issue.

Sincerely,

Mia Marinos

From: Renee Norling <rnorling@cox.net>
Sent: Saturday, April 25, 2020 4:12 PM
To: Scott Vurbeff
Cc: 'rick norling'
Subject: Fox Point Farms

Follow Up Flag: Follow up
Flag Status: Completed

[**NOTICE:** Caution: External Email]

Dear Mr. Vurbeff,

My husband and I have owned property in the Fox Point housing development for 30 years. We moved to this area, in part because my husband, Eric, had grown up here in Encinitas and attended Capri Elementary, Central school, Oak Crest Middle school and San Dieguito High school. His father, Walter Norling, had been active in the community since the 1960's as a principal of Oak Crest, the San Dieguito adult school, a member of the council for the Encinitas Senior center and the Leucadia Town Council. For these reasons, we have a well- rooted stake and interest in the community and wish it to maintain its status as a good place to raise your family. We raised our two children here and would like to help raise our grandchildren here in Fox Point as well, the first one due this year. Our main goal for Fox Point as a community is to maintain its property values, to keep it as its own community for a "good place to raise children, and to therefore, limit traffic to our streets.

Along with many Fox Point residents (approximately 109 homes), we have major concerns regarding the environmental impact of the proposed Fox Point Farms project . We wish to minimize excessive vehicles on our residential streets, and address safety concerns, by keeping the new high-density R30 mixed-use proposed project separate from our existing R3 residential community to the west. As with other recently approved residential communities in Encinitas, like Coral Cove, we need to separate the communities to avoid volumes of commuter traffic being dumped onto our residential street. We have many children and families already using the Sidonia exit from our neighborhood already. There must not be traffic entry/egress onto Sidonia Street from the new project. Instead, it should be onto a dedicated north-bound exit onto Quails Gardens Drive so that I-5 bound traffic can utilize La Costa Blvd. Our communities must be separated with a continuous wall, preventing housing element parking onto our small street and dumping of thousands of vehicle trips per day into our residential community. If the Fir Marshall insists on a second access to the development, then it should be onto Quails Gardens road which has better access. The worst option is to try to access an emergency via a small residential street, choked by high-density housing and over-parking deep in a residential community. It is dangerous and irresponsible planning.

Again, we are asking for:

1) All traffic access in and out of the new Fox Points Farms project to be only off of Quail Gardens Drive. This was done in the Coral Cove community near Ashbury Street and Vulcan and should be done here as well.
2) There should not be pedestrian access onto Sidonia Street from the project, just like the City did on Ashbury Street

3) Please separate the two neighborhoods by creating a wall and landscaping area as seen on Ashbury Street for the East side of Sidonia Street, adjacent to the project.
4) Please add No Parking signs on Sidonia street East side, like was added on Ashbury Street and Seeman Drive
5) Please add Resident Permitted Parking Only on Sidonia Street West side of the street and on Guildford Court.

PLEASE KEEP BOTH NEIGHBORHOODS SEPARATE.

Thank you for your consideration and all of the work you do to keep Encinitas a safe and family friendly community.

Sincerely,

Renee and Eric Norling
1017 Guildford Court
Encinitas, CA 92024
rnorling@cox.net

From: Robert Schiller <rjs123@pacbell.net>
Sent: Sunday, April 26, 2020 4:29 PM
To: acolamussi@encinitas.ca.gov; Scott Vurbeff
Subject: Fox Point Farms Development

Follow Up Flag: Follow up
Flag Status: Completed

[**NOTICE:** Caution: External Email]

Dear Mr. Vurbeff,

RE: Fox Point Farms Development

I am writing to you in regards to the environmental impact report you will be preparing for the Fox Points Farm project. I live in Fox Point at 1019 Saint Albans Place and have the following concerns.

Traffic: Leucadia Blvd already has too much traffic, with this development another 250 households will only make it worse. It seems the best solution is to have all Fox Point Farms traffic exit onto Quails Garden Drive. A simple solution would be to add dedicated turn signals for vehicles going north and south on Quails Garden at the intersection of Leucadia Blvd. This would reduce the frequent occurrence of crashes at that occur and make traffic flow much better.

Noise & Air Pollution: What are your recommendations to reduce both air and noise pollution for these proposed 250 new homes.

Soil Contamination: This property has been used for farming for over 70 years. What type of pesticides and other contaminates are in the soil? Very long time Leucadia residents claim that this property was also used as a land fill. How in-depth will your study be to determine the contamination levels. I noticed strange color water exiting the property onto the sidewalk on Quail Gardens Drive during the recent rains. This was once an Ecke property, many of the Ecke properties that have been developed had major soil issues.

Neighborhood Separation: The residents of Fox Point do not want the proposed develop to have an entrance and exit from Sidonia Drive. We also want a wall or fence separating the new development from the existing. Why should we be impacted by a new development when all traffic can be managed with exits onto Quails Garden Drive. There are no homes that would be impacted on Quails Garden Drive. If needed we are open to having an emergency vehicle gate.

Entertainment: With entertainment comes noise. I used to live by Quails Botanical Gardens, we had noise issues when they had weddings or speical events. What plans will you put in place to control excessive noise? Remember we are zoned at R3.

I look forward to reviewing your report.

Thank You

Robert Schiller

From: Scott Hinkle <Scott@ghjinc.com>
Sent: Friday, April 10, 2020 9:53 AM
To: Scott Vurbeff
Cc: cherock.alcoser@gmail.com
Subject: Neighbors to Fox Point Farms

Follow Up Flag: Follow up
Flag Status: Flagged

[**NOTICE:** Caution: External Email]

Mr. Vurbeff,

My name is Scott Hinkle. I live with my wife and 3 children at 1155 Sidonia Street in Encinitas. I am writing in regards to the development behind my home, with which I share a fence. I have several issues with the proposed development as do the other residents that share a border with the development.

In addition to the concerns that most other Fox Point residents have shared with you, there are concerns and issues that are specific to those of us that share a fence with the proposed development. These include but are limited to privacy, safety, drainage, displacement into our property of rodents, gophers, snakes, etc.

As it relates to safety and privacy, a solid wall running the length of Sidonia is essential. Additionally, when we purchased our home 14 years ago, one of the most attractive features was the fact that the farm behind our home was zoned for agriculture in perpetuity. That meant privacy, seclusion, little noise, etc. Since it appears that this development is well down the road, we probably cannot stop it. That being said, maintaining our privacy and safety is paramount. Once again, a permanent and impassable separation will be a good first step.

Under the current plan, the walking path running on the north and west side of the development, just behind our home has no fence or effective border between our two properties. Therefore, the hundreds of residents and outsiders that will be using the walking path will be able to peer into my backyard, and into my bedroom window as well as the second story bedroom windows of my children. This is obviously unacceptable. Once again, a permanent border as well as significant trees, greenery is necessary to preserve our privacy.

In addition, since we now know that “in perpetuity” no longer means forever, what is to stop the development from building similar high-density homes behind by backyard fence? There should be some safeguards against further development of their property “in perpetuity.”

I would like to show/discuss these issues that are specific to the 4 or 5 home that either share a fence with the development or border the open space to the north of the property. I can be reached via email or on my cell at 760-473-7030.

I look forward to hearing from you.

Regards,

Scott Hinkle, JD, CFP
Partner
Grant, Hinkle & Jacobs, Inc.
777 South Highway 101
Suite 105
Solana Beach, CA 92075
P: 858-350-4000
F: 858-350-0670
www.ghjinc.com

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**** For scheduling and/or immediate assistance, please contact Christine Speller at chris@ghjinc.com or by calling (858) 350-4073. ****

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From: Susan ''Catie'' Pignataro <Catiep@protonmail.com>
Sent: Monday, March 30, 2020 2:16 PM
To: Scott Vurbeff; Anna Colamussi; Carrie Bedord
Subject: Accomodation Inquiry: Public Comment Requests / Civil, Political, Constituional Rights

[**NOTICE:** Caution: External Email]

Dear Scott, Anna and Carrie,
Thank you for working within our city. I hope you and your loved ones are well during these scary times and apparently our new normal for the near future.

I am writing this as an inquiry upon receipt of the Fox Point Farms NOP of an EIR.

Request: Please advise on how the city is planning to ensure our Civil, Political and Constitutional Rights regarding this specific process, and all others if City Planning has decided to accept submissions where public comment is required by Act and or Law.

Please address how the city will be making accommodations for those without computers, access to the internet, access to the city offices per COVID19 shut down, lack of internet skills required and who can't assemble will be able to participate to see the plans, assemble, have open discussion with others affected by this project, share their opinions.

Detail:
Per disability and eldercare, my family and I, along with various neighbors in similar situations who have been ordered to stay at home due to health and safety are concerned about our rights to understand, assemble, and provide public comment.

I agreed to write to you and make some calls.

My understanding from The Department of Conservation today is that per the Governor's orders and due to the reasons above, only "ground up" construction and associated work is to be done.

There are a few other state office return calls I'm awaiting as well as written response. It was suggested I write this to you though at this point.

Thank you for your time. I look forward to your response.

Susan Pignataro
408.679.7000

Sent with ProtonMail Secure Email.

From: trisha hegg <trishahegg@gmail.com>
Sent: Tuesday, March 31, 2020 11:18 AM
To: Scott Vurbeff
Cc: Anna Colamussi; Trisha Hegg
Subject: FOX POINT Property owner against access from DRAMM + ECHERT / Fox Point Farms

[**NOTICE:** Caution: External Email]

Dear Mr Vurbeff-

I am writing you to voice my concern of the proposed project at Dramm + Echert, Fox Point farms and its impact on our neighborhood at Fox Point.

I have owned my home for 17 1/2 years in Fox Point, and there is a reason for it. We CARE about our community, and the safety of our families.

We have been made aware of the plans that Nolen Communities is planning on using our neighborhood as their future parking lot and thoroughfare onto Leucadia Blvd.

The new development with it's 250 homes, restaurants, Agri-entertainment etc will generate a minimum of 2500 - 5000 car trips daily depending on the number of residents in each unit.

We don't need this density of people and cars bleeding over into our neighborhood. There is no given reason for other than POOR PLANNING.

The intersection of Leucadia & Sidonia has been a DISASTER since day 1 of moving here. The amount of cars that run the red light both west bound and east bound is unimaginable.

I have called the police to complain on many near missed with speeding cars coming directly at my side and my teenage drivers.

In addition, I have been in contact with the city traffic planner to come up with a solution on Leucadia to stop the cars between Quail Gardens and Sidonia. The cars are traveling at a rate of over 45 mph when the run the light.

Adding the proposed 2500-5000 car trips to this mess is going to cause a fatality , sooner than later.

As I property owner in Fox Point , I will continue to FIGHT to keep these communities separate with NO ACCESS through or around FOX POINT.

IN addition , the current plan for parking to accommodate the volume of homes & units is not in any way going to satisfy the need of its residents.

NOT OUR PROBLEM.

I would appreciate the opportunity to have my VOICE HEARD.

Thank you -

Trisha Hegg

1011 St Albans Place
Encinitas, CA 92024

From: Wendy Shaw <dwshaws@pacbell.net>
Sent: Monday, April 27, 2020 6:46 PM
To: Scott Vurbeff
Subject: Comments for EIR re: Fox Point Farms development

Follow Up Flag: Follow up
Flag Status: Completed

[**NOTICE:** Caution: External Email]

Scott,
My husband, Doug Shaw, submitted this letter below, to you. I am in agreement with his statements. Please pay attention to the needs of our neighborhood of Fox Point while developing Fox Point Farms. I know you see these issues clearly, please, yes, PLEASE make a change so that we do not lose our safety and quality of life for the new development.

Several years ago I was the lucky one, I stopped just in time as a car ran the red light at Leucadia Blvd and Sidonia. She would have bashed in the the passenger side of the car, right where my son was sitting. I was shaking for days. I do know many others in our Fox Point that have not been as lucky. This added traffic will not be safe. What if I hadn't slowed down. What if this was your son sitting next to you?

Put yourself in our shoes, what would you want for your family, kids in the neighborhood, safety for your street? Close your eyes, really, do this right now, and imagine what this would look like with the increased traffic, with cars and people. How does this feel in your gut? Are you making decisions to please the bottom line of money, or the best for the people? Please make the right decision.

Thanks for your consideration.
Wendy Shaw
1185 Sidonia St
Encinitas, CA

Dear Scott,

I am writing to you to voice concerns I share with my neighbors over the proposed Fox Point Farms development adjacent to our neighborhood - MULTI-3524-2019, SUB-003526-2019, USE-003527-2019, DR-003528-2019, CDPNF-003529-2019.

My family has lived at 1185 Sidonia St. for the past 20 years, and on Passiflora Ave. before that since 1986. We have always enjoyed the peace and tranquility of our "semi-rural" neighborhood with its strong and historical agricultural influence. Many of us chose this neighborhood for those reasons. We see the proposed ingress/egress from Fox Point Farms onto Sidonia Street as a dangerous threat to our neighborhood's character, and equally or more important, it's **safety**. **We, the residents of the existing Fox Point neighborhood should not bear the impact of additional traffic, parking**

generated by the proposed Fox Point Farms development, nor other potential environmental repercussions.

I, like most of my neighbors, have personally witnessed several serious auto accidents at the corner of Sidonia St. and Leucadia Blvd. Several of my neighbors have been involved in these accidents, some with serious injuries. Out of necessity for our safety, we all are extremely cautious when entering and exiting our neighborhood - whether turning onto Sidonia St. from Leucadia Blvd., or exiting our Fox Point neighborhood onto Leucadia Blvd. - especially when making the turn to travel east on Leucadia. Many cars travelling west on Leucadia Blvd. fail to see or pay attention to the light at Sidonia St., approach the intersection at higher than speed limit velocities, and either fail to stop or are unaware of the red light completely. I see from the City's "2nd Cycle Review Comments" that **there were 36 collisions at the corner of Quail Gardens Road and Leucadia Blvd. in the past 8 years. How many accidents have there been at the corner of Sidonia and Leucadia? Please include this in your studies and make this information to the public/our neighborhood. I'm sure the cumulative number will be eye-opening and should be a very serious concern related to the proposed development.**

If an ingress/egress from the Fox Point Farms development onto Sidonia St. were to be allowed, adding the number of daily vehicle trips generated from the 250 new homes projected in that development to our existing neighborhood's volume will both create an untenable log-jam at the Sidonia-Leucadia Blvd. intersection, but surely **lead to more accidents with potentially more injuries or casualties.**

Further, allowing egress onto Sidonia from Fox Point Farms would also lead to parking issues along Sidonia when spaces in the new development are not available, or simply out of proximity or convenience for residents or visitors. Potential noise generated from additional cars would also pose a quality of life issue for neighbors in Fox Point who currently enjoy quiet and tranquility.

Additional environmental concerns my family and neighbors have related to the Fox Point Farms development include:

- Grading and Drainage: Potential of stirring up/releasing toxic residue from chemicals and fertilizer used for years of flower growing in the current greenhouses.
    - Concerns for unhealthful odors and air-borne pollution during construction
    - Draining of toxic liquids into our existing neighborhood down Sidonia street, and potentially further downstream into Batiquitos Lagoon and the ocean.
- Impact/potential overload on sewer and drainage systems with the addition of 250 new homes in the vicinity.
- Impact of addition of 250 homes on existing gas, electric, water and communications infrastructure, including phone, TV, and Internet.
- Impact to the many species of wildlife that live adjacent (our home is at the north end of Sidonia St., at the edge of Indian Head Canyon) to our existing neighborhood, including bobcats, coyotes, hawks, skunks, deer , possum,

raccoon, rabbits, snakes, owls, protected Gnat-catchers, and many other creatures that we coexist with.

- Noise pollution from the 250 new homes and associated vehicles, proposed restaurant and event area.
    - Our neighborhood has always enjoyed peace, quiet, and tranquility. How will the addition of the above mentioned developments effect our quality of life?

Here are my strong recommendations for changes to the development plan to help avoid the issues described above and protect our existing Fox Point neighborhood:

- **Do not include an egress from Fox Point Point Farms onto Sidonia St.**
    - If a second access road is required for emergency vehicle access, build that second entrance on Quail Gardens Road or Leucadia Blvd. where there would be no impact to existing residential neighborhoods.
- **Include in the Fox Point Farms plans the construction of a wall around all sides of the development** to completely separate the new development from the existing Fox Point neighborhood. This measure would stop all pedestrians and/or vehicles from access to Sidonia, and has worked well in other recent developments in our city.

I commend the efforts of the City and the developers to try to find desirable solutions to create low-income housing and accommodate state requirements. From what I have seen, the overall design of the Fox Point Farms is attractive and seems well-planned, **except as outlined above**. However, the integration into the existing neighborhood with major impacts to traffic flow and other existing infrastructure appears misguided, unfair and unacceptable.

I implore you, our planning commission, city council members, and Nolan Communities developers to **PLEASE pay heed** to the concerns outlined above that I know I share with my Fox Point neighbors. Find ways to eliminate dangerous and undesirable impacts to our existing neighborhoods - we should not pay the price of new development!

Thank you for considering and incorporating my input into the process of review of the proposed Fox Point Farms development.

Douglas Shaw
1185 Sidonia St.
760 525-6745

From: William Nissinoff <wnissinoff@gmail.com>
Sent: Tuesday, April 7, 2020 2:43 PM
To: Scott Vurbeff
Cc: Anna Colamussi
Subject: Fox Point Farms Development, Encinitas

Follow Up Flag: Follow up
Flag Status: Flagged

[**NOTICE:** Caution: External Email]

Hello:
I am writing in regard to the proposed Fox Point Farms Development currently under consideration for development in Encinitas. I reside at 1466 Lauren Court, Encinitas and have lived in my home for the past 10 years. My street is located approximate 1/4 mile north of the proposed development (off of Quail Gardens Dr.)

I would first like to point out that the character of the neighborhood and the surrounding area was a main attraction in my decision to purchase my home. I especially like the protected open space the area provides, as well as the agricultural use on the proposed site. As a matter of fact, I was in favor of allowing cannabis to be grown on the site when that was originally proposed. That use certainly kept intact the character of the area. I believe that if this use was put up for a vote again, it would most likely pass (especially considering the current alternative).

I have reviewed the drawings and plans for the proposed Fox Point Farms development. To me, it looks like the developers have spent considerable efforts trying to design a community that "fits in", while at the same time meeting the certain housing requirements of the City. While not opposed to development in general, I would **not** like to see this project approved for several reasons:

1. I believe that additional studies must first be done on the traffic impact from this development. The corner of Quail Gardens Dr. and Leucadia Blvd. is extremely hazardous. I know this first hand both as a driver and a pedestrian. It is extremely difficult to make a right turn onto Leucadia Blvd. (i.e. to head west) from Quail Gardens Dr. as traffic coming up Leucadia Blvd. is traveling at a high rate of speed (it's almost a blind spot). Also, turning left onto Leucadia Blvd. (i.e. to head east) from Quail Gardens Dr. is very troublesome. There are no left turn only lights on Quail Gardens Dr. and there are a large number of accidents in this intersection. As a pedestrian, I have

almost been hit several times crossing this intersection. Before considering adding additional cars through this area, the City should address and fix the current problems.

2. It is my understanding that the City (due to pressure from the residents living off of Sidonia St) is now considering removing the entrance/exit from that street, thereby pushing all of the traffic onto Quail Gardens Dr. To me this is unacceptable. First, the issues highlighted in 1 above will only get worse if Quail Gardens Dr. provides the only entrance/exit for the proposed community. Second, you will now also create additional backup and congestion onto Quail Gardens Dr. which certainly was not designed to handle this type of traffic. In my opinion, if the development is approved, Sidonia should also have an entrance/exit. This will alleviate some of the problems on Quail Gardens already mentioned. Also, there is a stoplight on Sidonia and Leucadia Blvd. It is obvious that Sidonia can safely handle/share in some of the traffic impact and should be required to do so.
3. The project changes the whole feel of the surrounding area (one from agricultural to much higher density). When purchasing my property, it was my understanding that this site would be kept for agricultural purposes (not a housing development).
4. I believe there are other areas in Encinitas more suitable for this type of development; and better suited to meet the housing issues the City requires while addressing the traffic concerns.

Should you have any questions or require additional information please let me know.

Sincerely,

William Nissinoff
1466 Lauren Court
Encinitas, Ca 92024
Tel: 760-390-2901

From: Wynn Roy <roysreef@cs.com>
Sent: Tuesday, April 7, 2020 8:04 PM
To: Scott Vurbeff
Subject: Fox point farms development

Follow Up Flag: Follow up
Flag Status: Flagged

[NOTICE: Caution: External Email]

Dear Mr Vurbeff,

I am writing to you with great concerns about the proposed development on Sidonia Street and Leucadia Blvd.
As a life long resident of Leucadia I have seen many changes. Some for the better and some that have affected our quality of life in the worst ways. Once these changes are made, it's done and we as a community must accept it and move on.. for me, this will be a hard one to move on from.

The proposed High density development will directly impact my beloved Fox Point neighborhood and alter the lives of every single family who has made a home here.

Safety and noise are my main concerns. More cars mean more traffic and more accidents. I was involved in a car accident on Leucadia Blvd. My car was totaled as a result of a red light runner. Fortunately, my kids and I escaped unscathed. Many of my neighbors have either witnessed accidents or have similar stories.
We are a neighborhood where kids ride bikes, skateboards and play ball in cul de sacs. Parents breath easy knowing their kids can go outside and play with their friends. Currently, most of the vehicles who enter Fox Point are residents. We all watch out for one another.

If there is an entrance/exit to the proposed 250 units and commercial space on Sidonia our feeling of safety will turn to fear. Fear that someone will be driving fast and hit a pet or worse, a child. In my opinion, Fox Point will become the "short cut" to exit in the morning. Passiflora will see the most traffic because there is no light and In turn, no wait time.
Also, we will see the noise level increased substantially.

Its not fair to ruin a safe, established neighborhood in order to approve the plans of a financially driven developer. There should not be an entrance/exit on Sidonia Street.

Please consider our important and valid concerns while you conduct your research. What we desire is to retain what we have.. A quiet and safe family neighborhood.

Sincerely,
Wynn Roy

Sent from my iPhone

APPENDIX A-2 CITIZITEN PARTICPATION PROGRAM REPORT

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Citizen Participation Program Report
Case Nos. MULTI-3524-2019; CPP-3525-2019; SUB-3526-2019; USE-3527-2019; DR-3528-2019; and CDPNF-3529-2019
Fox Point Farms

Overview

A Citizen Participation Program (CPP) public meeting was held for the Fox Point Farms project on February 27, 2020 from 6 pm – 9 pm at Encinitas City Hall (Council Chambers). Approximately 80-90 individuals attended the CPP public meeting. This CPP report includes a summary of the concerns and issues raised at that meeting, and how those concerns have been (or are being) addressed. Attached to this report are the following:

- CPP meeting notice
- CPP mailout certification
- CPP meeting sign-in sheet
- CPP meeting comment forms
- Newsletter/site visit sign-up sheet
- CPP meeting presentation
- Photos from the CPP meeting

We will update this report based on future input received from the public.

What techniques did you use to notify and involve the public regarding your application?

All property owners within a 500-foot radius as well as all occupants within a 500-foot radius from the project site were sent a copy of the neighborhood letter and the vicinity map in the mail (mailed on February 14, 2020). Additionally, representatives of Nolen Communities have met with neighboring residents on several occasions, and we intend to continue those meetings in the future. We will also be holding an information meeting at the property in the near future.

What concerns, issues, and problems did you hear during the process?

Nolen Communities received public input from the public via comment forms at the meeting, subsequent emails from the public, and in-person meetings. The comments received have been summarized below:

Access and on-street parking on Sidonia

- The project should not utilize Sidonia for access. Make this emergency access only, or limit to only certain residents (not all). Put in a gate. Discourage cut-through traffic – impacts on Sidonia and Passiflora. Consider a wall between Fox Point Farms and the existing neighborhood – no vehicular or pedestrian access.
- The project will result in overflow parking issues on Sidonia. Make no parking on east side of Sidonia.
- The project should be required to widen Sidonia as much as possible.
- Don't make the Quail Gardens neighbors (Lauren Court) the victims by limiting the Sidonia access and forcing all traffic onto Quail Gardens.
- Will Sidonia be improved with a sidewalk on the east side?

General traffic concerns

- Amount of traffic going onto Leucadia Boulevard will be greatly impacting an already very busy set of intersections. Potential for increased accidents.
- The traffic assessment is inadequate and unacceptable.
- The project results in too much traffic on Quail Gardens Drive and Sidonia.
- Traffic on Quail Gardens Drive south of Leucadia Boulevard will be impacted, especially given the other Housing Element sites down there.

Project aesthetics/overall program/public-serving amenities

- Aesthetic is very nice.
- The project is respectful of the community character.

- Your project is beautiful and so welcomed – great job. I love the farm.
- This is a great project – you can be proud of your efforts. Nice to see smaller units being built, and low income living built to rent (not sell).
- This CPP had more information than any I have attended in the past.
- Looks kind of ugly from Leucadia Boulevard.
- Too dense – too many people in a small area. Keep it as agriculture.
- People will walk to homes/restaurants, especially if the restaurant is a quality restaurant.
- Can the restaurant have music outdoors on a patio and also go into the night? Drinking at night?
- Will the restaurant serve hard alcohol? We don't want a bar scene in the neighborhood.
- Move the farm to the western edge of the property to create a larger buffer from the existing Fox Point community.
- Who is going to farm the farm and run the restaurant? Who owns the farm after 99 years?
- Need to strengthen legal protection for remaining agricultural lands.
- There are current flooding issues when it rains, particularly from the project site onto Sidonia.
- Consider moving the restaurant into the canyon boundary to be a part of nature.
- You are implying that you are forced to have the density, but you could go down to R3 or R5.
- Dark skies area – make sure all the exterior lighting faces down and not out.
- Are you taking other density bonus waivers besides setbacks?
- CC&Rs/HOA must insist on garage parking.
- Please make sure the project's trail/jogging track is a full circular loop around the entire project.
- Will the project contribute to the Encinitas Ranch CFD?
- Will the project stay within the 30-foot height limit? Are you planning to add Density Bonus on top of your original number of planned units?
- I applaud your overall plan for low-income housing and the agrihood.
- Who maintains the low-income apartment project?

How have you addressed the concerns, issues, and problems raised?

Access and on-street parking on Sidonia

Vehicular access on Sidonia was the most common concern/issue raised by the public, both at the CPP meeting and via email. Many residents are concerned about traffic along Sidonia (in addition to St. Albans and Passiflora), and would prefer that the project not create future traffic issues along those streets. Some members of the public were also concerned about pedestrian access to Sidonia, wanting a physical separation between the proposed Fox Point Farms community and the existing Fox Point community. Lastly, several individuals voiced concerns about on-street parking on Sidonia being utilized by future Fox Point Farms residents.

Nolen Communities understands these concerns, and is actively working with City staff to explore alternative access solutions that reduce the amount of future traffic on Sidonia. We also understand the concerns raised related to on-street parking, and have worked closely with our design team and the City to ensure adequate parking onsite.

General traffic concerns

A full traffic analysis has been completed for the proposed Fox Point Farms project, and is on file at the City of Encinitas. The analysis considers existing, near-term, and future year (2035) conditions with and without the proposed project.

Project aesthetics/overall program/public-serving amenities

Based on the comments received, the public generally seemed to like the architecture and overall program for the agrihood. The comment about the aesthetic along Leucadia Boulevard is noted, and our team is working on improving the landscaping/amenity plan along that corridor. The comments about density and unit count are also noted; however, this project is required to provide a minimum of 246 residential units per the City's Housing Element and associated Regional Housing Needs Assessment (RHNA), and we believe that the provision of 250 residential units in mostly two-story structures is consistent with both the community character as well as the RHNA requirement. The comment that existing residents will walk to the restaurant is exactly what we are hoping to encourage by locating a public-serving amenity use (restaurant) within the project. The restaurant will serve alcohol – many customers look for a restaurant to have alcoholic beverage service when choosing where to dine. The availability of alcohol will not be the focal point of the business, but rather an ancillary amenity that will provide a desired option to

many patrons. The request for the provision of alcohol at the restaurant will, therefore, enhance the restaurant and will perform a function that is beneficial to the community. From an operational standpoint, the farm cannot be moved to the western edge of the property, although we did consider that design early-on. The farm will be leased by the current property owner (Bob Echter), and the restaurant will be owned by Nolen Communities and run by a professional team. Current flooding issues on the property (which impact Sidonia and adjacent residents) will be resolved with construction of Fox Point Farms, which will store, treat, and slowly release stormwater during storm events, consistent with City requirements. The project is not utilizing State Density Bonus Law to increase density on the site, and is in fact proposing a unit count that is substantially less than the potential unit count if the density bonus were utilized (please refer to Density Bonus Application Supplement). All lighting associated with the project would be directed downward, consistent with dark skies policies (please refer to the project's lighting plan). The CC&Rs/HOA will have requirements in place to require garage parking for vehicles (rather than personal storage). The project's loop trail will in fact be a full circular loop. The project is not asking for any waivers to height under State Density Bonus Law – all structures will conform to the height requirements of the Housing Element Update and associated R-30 zone.

Many of the other questions raised during the CPP meeting are addressed in our application submittal package, which is available to the public electronically and is also available in hard copy format at City Hall (Planning Department). Regarding any issues/concerns that are not yet resolved, Nolen Communities is committed to continuing conversations with the community as well as the City and updating our plan as appropriate.

If there are concerns, issues, and problems you are unable to address, explain why.

As noted above, there are several issues/concerns (e.g. access on Sidonia) that are currently being addressed. We believe that we were able to sufficiently address many of the other issues with the public that voiced their concerns, and we are encouraging an open dialogue with the public as we continue to refine our project design.

ATTACHMENTS

February 27, 2020
Nolen Communities
Would like to invite you to attend a:

NEIGHBORHOOD MEETING

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

The Fox Point Farms project proposes a Tentative Map Density Bonus, Design Review Permit, Major Use Permit, and Coastal Development Permit to allow for the development of an "agrihood" community on a 21.48-acre site located at 1150 Quail Gardens Drive (APN 254-612-12-00) in the Leucadia community of Encinitas.

The Tentative Map Density Bonus would subdivide the existing property into multiple lots. The Design Review Permit is required in order to ensure project consistency with design review guidelines established by the City of Encinitas. The Major Use Permit would allow for the proposed public uses (farm-to-table restaurant, farm stand, event lawns, discovery garden, greenhouse and community work area, and an outdoor education patio), including the sale of alcohol for on-site consumption at the restaurant. The Coastal Development Permit is required in conjunction with the issuance of the aforementioned permits, given the project's location within the Coastal Zone.

The community would consist of 53 for-sale cottages/carriage units/townhomes, 197 apartments, edible landscaping, community gardens, trails, a bocce court, social spaces, a community library, and a community recreation center. The project would also include a shared public/private agricultural amenity area including a farm-to-table restaurant, farm stand, event lawns, discovery garden, greenhouse and community work area, and an outdoor education patio. Lastly, the northern portion of the project site would remain in agricultural use, serving as an organic farm operation. Of the 250 residential units proposed in the community, 211 would be market-rate units and 39 would be "very low" (50 percent of area median income) affordable residential units.

The project site is currently occupied by private commercial greenhouse buildings (Dramm & Echter's flower-growing operation). The site is one of 16 sites included in the City of Encinitas Housing Element Update, which was adopted by the City of Encinitas on March 13, 2019. As part of that Housing Element Update, the project site was designated with an R-30 overlay zone and allocated a minimum of 246 residential units. As indicated above, the proposed project would consist of 250 residential units.

Surrounding land uses include Encinitas Ranch Golf Course (to the east), Leucadia Boulevard (to the south), existing single-family residential development (to the west), and the Magdalena Ecke Open Space Preserve (to the north).

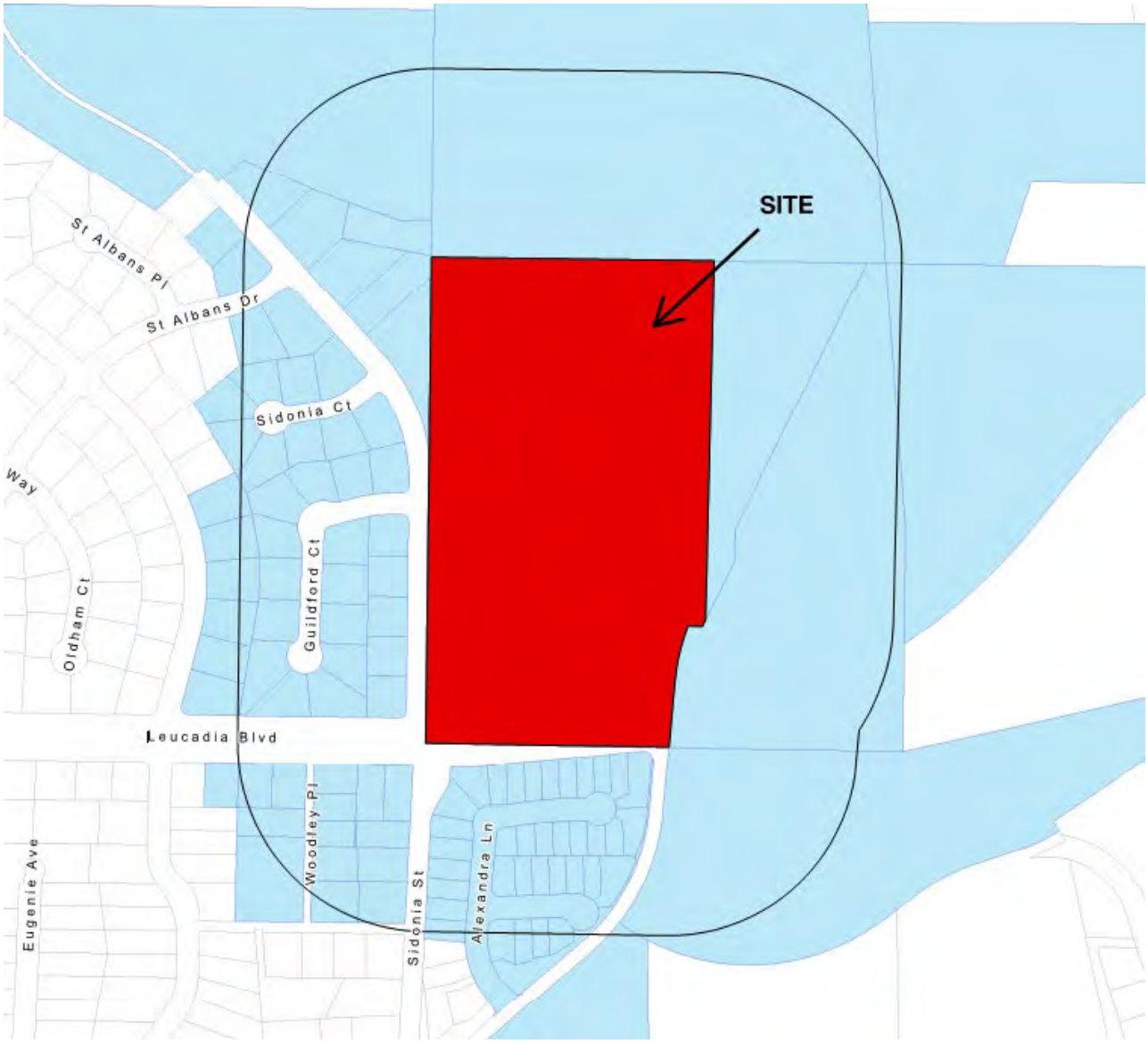
We are looking forward to meeting you and discussing any concerns or questions you may have regarding this proposed project. If you cannot attend the meeting, or if you have any questions before then, please feel free to contact Brian Grover at bgrover@nolencommunities.com or 858-336-9337.

Please join us on:

THURSDAY, FEBRUARY 27, 2020
6:00PM – 7:00PM
AT
ENCINITAS CITY HALL, COUNCIL CHAMBERS
505 S. VULCAN AVENUE
ENCINITAS, CA 92024

This notice is being sent to you in fulfillment of the City of Encinitas Citizen Participation Program requirements (EMC 23.06). This outreach effort to our neighbors is necessary because an application for development has been or will be filed with the City of Encinitas Development Services Department. The sole purpose of this process is to be a preliminary tool for opening a dialogue and to ensure that the project applicants and the citizens both have an opportunity early in the process to discuss, understand and try to resolve neighborhood issues related to potential impacts of a proposed project on the surrounding neighborhood. It is not meant to necessarily change or prevent a project as proposed. Questions about this notice and the proposed development should be directed to the contact person above. Questions regarding the Citizen Participation Program should be directed to Development Services at 760-633-2710.

Vicinity Map



CITIZEN PARTICIPATION PLAN NEIGHBORHOOD NOTICE MAIL OUT CERTIFICATION

For the referenced project, I certify that I have completed the mailing of the Citizen Participation Plan neighborhood notice materials as approved by the City and that the mailing has been sent to the complete list of addresses provided. I also acknowledge that any errors and/or omissions may invalidate any Citizen Participation Program activities conducted in reliance of these materials. Any such noticing defect may result in re-noticing and may cause additional cost or delay to my project.

Signature:
(Applicant/ Authorized Agent) _____

Print Name: Brian Grover

Case Number: MULTI-3524-2019; CPP-3525-2019; SUB-3526-2019; USE-3527-2019; DR-3528-2019; and CDPNF-3529-2019

Location: 1150 Quail Gardens Drive

Date Mailed On: February 14, 2020

Return to:

CITY OF ENCINITAS
DEVELOPMENT SERVICES DEPARTMENT
CPP COORDINATOR
505 SOUTH VULCAN AVENUE
ENCINITAS, CA 92024
(760) 633-2710

SIGN-IN SHEET

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

NAME	ADDRESS	SIGNATURE	LETTER IN MAIL? (YES/NO)
Cherodo Alvarez	1149 Sidonia St.		No
Scott Winkle	1155 Sidonia St.		YES
William Morrison	875 Del Rio		No
Charles Wolfe	1164 Sidonia CT		Yes
Sarah Morrell	1320 Vis		no
Sandra Michelson	957 Oldham Ct		Yes
Phillip Broderick	6721 Limonite Ct		no
Kris Johnson	1408 Lamon Ct.		No
Bart McGhee	1012 Oldham Wy		Y
Alex Riley	153 E. Jason Enc.		N
Sheila Cameron	1662 Candor		N
Kim Brownell	1786 Swallowtail Rd		N
Dadla Pourzal	1145 Stratford Dr.		e mail
Judy Bartlein	" "		e mail
John Carlson	P.O. Box 2173 Escondido		
Dave Michelson	927 Oldham CT, E		Yes
Caitlin MacMillan	166 Melrose Ave.		yes!!!
Kaylan Agnew	878 Eolus Ave.		N

SIGN-IN SHEET

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

NAME	ADDRESS	SIGNATURE	LETTER IN MAIL? (YES/NO)
Julie Thunder	1805 Westminster Dr. Cardiff		
Kelley Turney	Fuchsia Street		YES
Heather Cole	10414 Passiflora Ave	H. Cole	NO
Dolores Welty	2076 Sheridan	Dolores Welty	no
Lonnie Brownell	17916 Swallowtail Rd		no
Tashi MacMillen	166 Melrose Ave	" "	No
Annie Aguilar	PO Box 230199 Enc.		Yes
Rox Dodge	744 Lotus Blossom St	R W Dodge	~~Yes~~ No

SIGN-IN SHEET

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

NAME	ADDRESS	SIGNATURE	LETTER IN MAIL? (YES/NO)
Juan Pablo Agudelo	P O Box 230199 Encinitas		NO
DONNA BARBER	1168 SIDONIA CT		NO
JOE WILLIAMS	1017 ST. ALBANS DR		NO
PEG WILLIAMS	1017 ST. ALBANS DR		NO
Jane Dore	959 Passiflora	Jane M Dore	NO
CAROL MEAD	1037 PASSIFLORA	Carol M. Mead	YES
Ruth James	1160 Sidonia Ct		YES
Keli Gunn	899 Woodley Pl		Yes
Kristi Clark	934 Marisa Ln ENC	Kristi Clark	NO
SARAH THEER	-		YES
Angelica Pedler	1128 Sidonia Street		Yes
Robin Monat			
Cameron Klein	194 Coast		
TROY Schiller	1019 St. Albans PL		NO
Robert Schiller	1019 St Albans PL		NO
JOHN EARNHART	1202 SIDONIA ST		YES
MARY KANE	1026 GUILDFORD CT		YES
Andrew Matuszeski	1061 Passiflora		N
Nancy Sois	1023 Passiflora Ave		
Donna Di Benedetto	825 Eugenie		?
Wendy Shaw	1185 Sidonia Sidonia St.		Y
Rebecca Meade	1050 Guildford Ct		Y
KATHLEEN LEES	1075 URANIA AVE		Yes

SIGN-IN SHEET

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

NAME	ADDRESS	SIGNATURE	LETTER IN MAIL? (YES/NO)
GLENN JOHNSON	537 KRISTEN COURT		NO
Jack Mary Plasse mcgee	1014 Passiflora Ave		got it
Ed Allen	1156 Sidonia CT		
Doris Allen	1156 Sidonia Ct		
John Anzola	1066 Alexandra Ln		Yes
Sally Peak	833 Woodley Pl.		yes
Kim ZIRKLE	801 S. Sidonia St		yes
Jane M. Hamilton	1218 Sidonia St		No
MIKE PUNARO	926 PASSIFLORA AVE		NO
MARK TULLER	1428 LAUREN CT ENCINITAS		NO
Karolina Bulaj	1075 St. Albans		Yes
Tom WARDEN	1041 SAINT ALBANS		~~No~~ yes
JAMIE SIMON	1710 Folkes Ave		Yes
CHRIS MA	969 SIDONIA		Yes
PATRICIA POLLOCK	1030 PASSIFLORA AVE		yes
Douglas Shaw	1185 Sidonia St.		Y
Sarah Brading	1069 Passiflora Ave	Encinitas	No
Eric Renee Martinez	1017 Guildford Ct		Yes

SIGN-IN SHEET

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

NAME	ADDRESS	SIGNATURE	LETTER IN MAIL? (YES/NO)
Katrin Flechsig	619 Orpheus	Kflechsig	no
Jd Lh Brekiy	1069 Passiflora		yes
DAVID SHEEBAN	1171 SIDONIA ST		YES
BRIANNA KLATCHKA	4602 POINT LOMA BLVD		NO
BARBARA KLASIC	1052 Passiflora Ave		YES
Diana John	918 PASSIFLORA AVE		YES
JOHN KLASIC	1052 PASSIFLORA AVE		YES
Michelle Gray	1620 Swallowtail Rd		YES
Kris Powell	136 E Jason St #C	Kris E Powell	NO *
MARY CONWAY	575 Arden Dr.	MaryConway	NO
Joanna Mehra	1015 Pacaya Ln		ye
Christine Hawes	950 Passiflora Ave		yes
G. Sodomka	105 Mozart Ave	G.V. Sodomka	NO

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

I live on Passiflora Ave. I have 2 young children who play and ride bikes outside of house every single day. I bought this house because we have a quiet street in a residential neighborhood. I completely object to the access road onto Sidonia. You are WRONG that cars will exit onto Sidonia and turn left and head to Leucadia. They will instead turn right on Sidonia, then left on St Albans and then left on Passiflora. Thousands of new cars will then drive past my house + children at perhaps 8X or more per day. This is completely unexceptable as a homeowner on Passiflora Ave. It is very dangerous and will literally cause a huge backload of traffic waiting to turn onto Leucadia every single day.

NAME (please print): Christine Hawes

ADDRESS: 950 Passiflora Ave.
Encinitas, CA 92024

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

YES! TRAFFIC EXITING ONTO SADONIA - PARKING. I LIVE ON SAINT ALBANS. TRAFFIC WILL EXITING DOWN AROUND HOUR CORNER - YOU CAN PUT INTO A KNOX BOX ACCESS ONLY EMERGENCY VEHICLES IN THAT GATE -

858 - 259 - 5432

NAME (please print): THOMAS WARREN

ADDRESS: 1641 SAINT ALBANS DR

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

I am unhappy with the added traffic on Quail Gardens. As people spoke tonight, more concern was made regarding the Sidonia traffic. I don't think that all the people living in the development can go in or come out of one entrance. The Quail Gardens road is one lane in each direction and it won't be enough. Please review the traffic on Quail Gardens as well. I wouldn't want to lose the current trails on Quail Gardens. They are enjoyed by many people.

NAME (please print): Kim Brownell

ADDRESS: 1786 Swallowtail Rd
Encinitas, CA 92024

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

Project aesthetic is very nice, just mainly concerned about access point on Sidonia.

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

Concerned about the access point onto Sidonia. People will use Fox point as a through street and exit onto Leucadia using Passiflora. There is already significant traffic during peak times. Also concerned about overflow parking on Sidonia if there is access.

NAME (please print): Karolina Harm

ADDRESS: 1025 St. Albans Drive.

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

No - it keeps changing

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

NO Exit

NO Exit ON Sidonia

Maybe also consider a wall between Fox Point Farms and the neighborhood Fox Point by Sedona St

NAME (please print): Bob & Trish Schiller

ADDRESS: 1019 St. Albans Pl.

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

1.) Please strengthen legal protection for remaining ag land. Needs to be permanent Deed restriction.
2.) Grading. The current drive way onto Sidonia becomes a river when it rains.
3.) Should have shown 3-story elevations.
4.) Consider moving the restaurant out into the ag / canyon boundary. Don't just look at nature - be part of it.

NAME (please print): Andrew Matuszeski

ADDRESS: 1061 Passiflora Ave.

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

NO TRAffic Estimates way too Low

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

YES - TRAffic on SYCAMORE - too many cars for a small 2 Lane Residential street

YES - TOO DENSE - too many people IN S mall AREA

NAME (please print): C. MEAD

ADDRESS: 1037 PASSIFLORA

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

Details, like projected numbers of bedrooms and persons in the entire project, projected numbers of cars should be shown on a table to be viewed.

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

1. Gate the access road to Sidonia as entrance only for emergency vehicles. Please!

2. Amount of traffic onto Leucadia Blvd will be greatly impacting an already very busy and dangerous set of intersections. We are concerned about accidents & loss of property values to our homes

NAME (please print): Renee + Eric Northrup

ADDRESS: 1017 Guildford Ct.

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

but need changes to make it work.

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

- Traffic on Sidonia. Concern for street improvement
- Increased potential accidents on Leucadia
  - concern no ↑ in safety ć traffic lights / Sidonia / Leucadia
  - Concern re: parking on Sidonia / will happen - People will walk to homes / restaurants esp of "great quality" restaurant.
  - Concern with Traffic diverting through neighborhood of Fox Point.

NAME (please print): H. Cole

ADDRESS: [redacted] Passiflora Ave.

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

Please NO high density. Keep AG!!
Looks kinda ugly from Lemoda Blvd
Who maintains low income high density
Apartment project??

NAME (please print): D.M. Bennett

ADDRESS:

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

I think it is fine except for the traffic concerns. Widen Sidonia as much as possible & put red curbs. No street parking

NAME (please print): ERIC NORLING

ADDRESS: 1017 GUILDFORD CT.

30 year resident in Fox Point.
60 year resident in Encinitas
within 1 mile of the site.

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

Not enough $ Value of Sold / Rental units.
Unknown prices for selling point of low
Cost Housing for city charter.

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

We do NOT want Access to Sidonia St.
Emergency gate is Appropriate.

Too much density for Community. What
happened to spreading out Developed
areas. So not in one community??

NAME (please print): Sandra Michelson

ADDRESS: 927 Oldham Ct.

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

YES, FOR THE MOST PART

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

- I BELIEVE THE TRAFFIC IMPACT ASSESSMENT IS INADEQUATE AND UNACCEPTABLE. I'M HIGHLY CONCERNED WITH THE IMPACT OF NO TRAFFIC ON SIDONIA ST. THERE IS SUBSTANTIAL MITIGATION THAT ADDRESSES THESE CONCERNS.

- THE EASIEST ROUTE TO FOX POINT CANYON IS DOWN SIDONIA ST. THIS WILL RESULT IN SUBSTANTIAL VEHICLE AND FOOT TRAFFIC. I'M VERY CONCERNED!!! THE SOLUTION IS TO NEGOTIATE A SEPARATE PATH FROM THE FOX POINT FARMS SITE DOWN INTO THE CANYON. THIS IS NOT IMPOSSIBLE OR EVEN DIFFICULT!!!

NAME (please print): JOHN EARNHART

ADDRESS: 1202 SIDONIA ST

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

yes! Traffic and access to Sidonia Street and Fox Point Neighborhood.
Remove In/out access to Sidonia!
A wall separating developments would be ideal.

- Move Farm to separate developments along with Wall.

NAME (please print): Joe + Peggy Williams

ADDRESS: 1017 St. Albans Drive

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

Yes, This CPP had more info that any I have attended in the past. These Folks did a great job answering questions on the group. The project is respectful of the community character

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

NAME (please print): William Morrison

ADDRESS: 825 Del Rio Ave Encinitas

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

Put agricultural on Sidonia St,

→ Put wall on Sidonia - Keep us separate

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

What if a couples buy a house together - They then have 4 cars. Will they park on Sidonia St? or in Sidonia Ct. where I live

Can the Restaurant have music outdoors on a patio + also go into the night. Drinking at night & parking in Fox Point? If they park in front of my house my bedroom is on street side.

NAME (please print): Ruth James

ADDRESS: 1160 Sidonia Ct. Encinitas, CA 92024

rnjames1@cox.net

Jane Doe
959 Passiflorative

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

A dividing wall on Sidonia between the Fox Point Development & Fox Point Farms would be appreciated!

Thank you.

NAME (please print): Renee Norton

ADDRESS: Guilford CT.

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

yes I DO
OUR property Abuts the fox Basin canyons and People trespass ON OUR property now.
when you create this community what will happen. when people want to ACCess the BASIN?

NAME (please print): KIMELAINE ZIRPOLO

ADDRESS: 1201 B Sidonia St Encinitas Ca 92024

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

Your Project is beautiful and so welcomed.
Great Job.
I can see my daughter and Grandkids living there one day
I love the farm

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

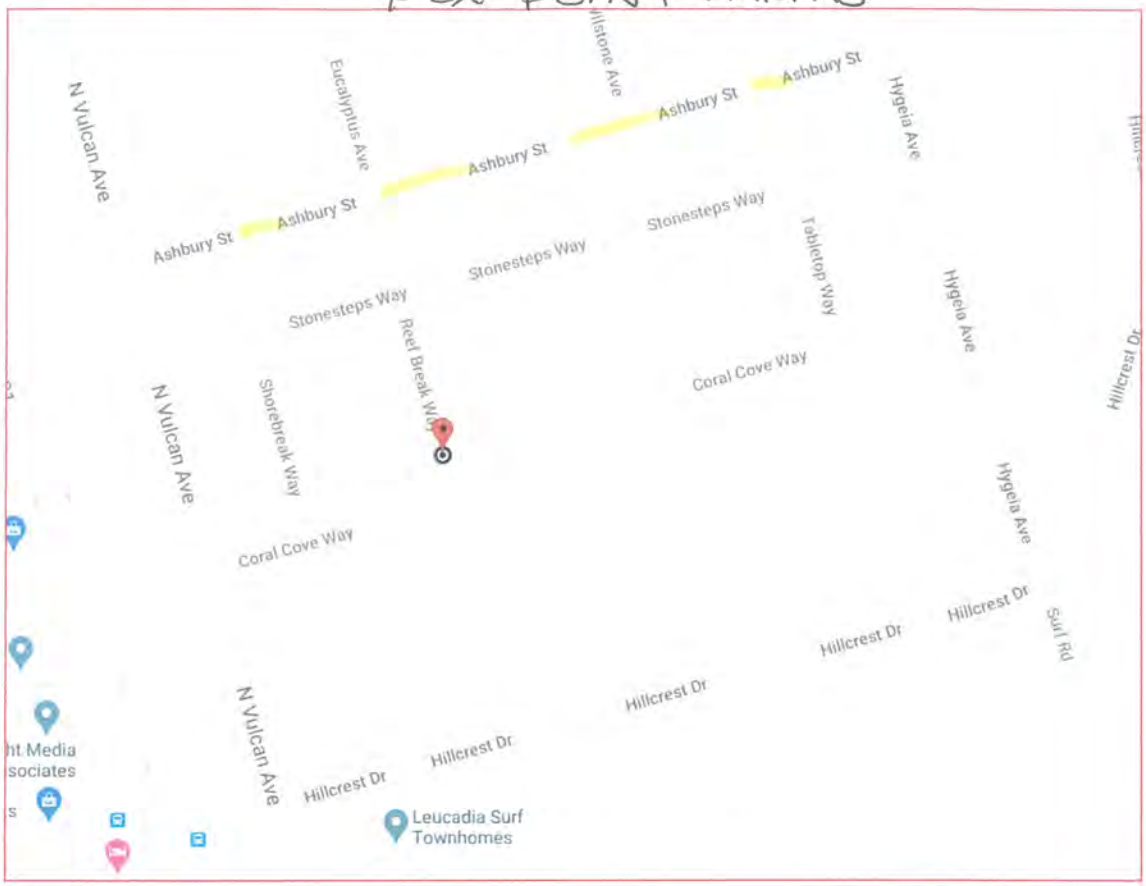
NAME (please print): Robin McNeal

ADDRESS: I used to live on Sidonia its not a beautiful street. You will make it outstanding.

Comments

Case Nos. Multi 3524-2019, CPP-3525-2019
SUB-3526-2019, USE-3527-2019, DR 3528-2019
and CDPNF-3529-2019

FOX POINT FARMS



2/27/2020

We are asking the City of Encinitas to consider emulating the design on Ashbury Street (Coral Cove Community) off of Vulcan as an example for the design of Sidonia Street as it pertains to the Dramm & Echter property or proposed "Fox Point Farms" project proposal.

We are asking the City of Encinitas and Nolen Communities to be good neighbors from day one, have complete transparency with the genuine Fox Point Community Residents and especially those living on Sidonia Street so we can work together.

Ashbury Street from the Coral Cove Community is a good example of what has the potential to work well for both communities because:

- All traffic access into Coral Cove enters and exits from Coral Cove Way. We do not want traffic access from the proposed community to access Sidonia Street.
- Fire safety gate access is on Ashbury Street. If required use the current Dramm & Echter gate on Sidonia Street for Fire safety access only, no pedestrian access.
- Walled and landscaped area to separate the two communities as seen on Ashbury street for the East side of Sidonia Street.
- No parking signs on Ashbury Street, we want No Parking signs on the east side of Sidonia Street and Resident Permitted Parking Only on the west side of Sidonia Street.

Thank you

Barry & Angelica Pedler, 1128 Sidonia Street, Encinitas CA 92024, aspedler@gmail.com, 24 year residency

760-944-7152

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

No Entrance / Exit on Sidonia!

put a Wall on Sidonia to keep this new neighborhood separate!

You are implying that you are forced to have the density as currently proposed, but you could go down to R3 or R5.

NAME (please print): Jeffrey Bloom

ADDRESS: 1058 Guildford Ct.

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

We are a young family of 5 with 3 small children living on Guildford Ct first cul de sac off Sidonia Please do not have these Communities Connect by making an entrance on Sidonia. This is a major SAFETY issue with traffic - young kids

We respectfully request a wall on Sidonia

NAME (please print): Rebecca Meade

ADDRESS: 1050 Guildford Ct
Encinitas 92024

COMMENTS

Case Nos. MULTI-3524-2019; CPP-3525-2019;
SUB-3526-2019; USE-3527-2019; DR-3528-2019;
and CDPNF-3529-2019
Fox Point Farms

1. Do the documents and presentation clearly identify the scope of the project? (Yes or No)

2. Do you have any other issues or concerns requiring further review? (Yes or No; if Yes, please explain)

- Obviously traffic on Sidonia is a big issue that must be resolved.
- Who is going to farm the "farm" and run the restaurant? Especially if it is a 99 year easement - no one is going to be here to farm that property for 99 years.
- Who does it belong to? Who owns it after the 99 years?

NAME (please print): KATHLEEN LEES

ADDRESS: 1075 Urania Ave

- If this is in the 'dark skies' area - Make sure all the exterior lighting faces down not out.
- Are you taking other "waivers" besides set backs?
- CC&R's & HOA must insist on garage parking.

This is a great project - you can be proud of your efforts. It is a pleasure to see smaller units being built. And low income being built to rent not sell.

Are any of the single story units for sale? They are good for senior citizens and this is a terrific set up for seniors.

Be patient with the neighbors. They need education to still their fears.

Comment

We on Lauren Ct are concerned about the traffic impact on Quail Gardens.

+ Many people will drive north to Sapony to La Costa to the 5
+ Many cars will render the already-dangerous Quail Garden-Leucadia intersection even more dangerous
+ Don't make the Quail Gardens

neighbors the victims by
limiting the Sedona access
and forcing all traffic onto
Orvieto Gardens.

Mark Tuller 1428 Lauren Ct
760-944-7746

Comment

Would you be willing to to meet with the Lauren Ct neighbors? I would arrange it. We have not been included in the planning. Please give me a call.

Mark Tuttle 1428 Lauren Ct.
760-944-7746

Comment

I applaud your overall plan for low income housing, ~~ag~~ agrihood, etc. Well done.

However, I have a number of comments on other cards.

Mark Tuller 1420 Lauren Ct
760-944-7746

Comment

Project has a trail/jogging track.

Please make sure it is a full circular loop of the entire project — so it's a real loop

Mark Tuller 1428 Laurel Ct.
760-944-7746

760-
944-
7746

Comment

The Lauren Ct neighbors pay Encinitas Ranch HOA fees that pay for the gorgeous Quail Gardens median, trail doggy bags, etc.

Will the project contribute to these amenities?

Mark Tuller 1428 Lauren Ct

FOX POINT FARMS

CULTIVATING COMMUNITY THROUGH AGRICULTURE

If you would like to stay informed and be invited to future Fox Point Farms events, please sign up below!

NAME	EMAIL	ADDRESS
1. Keli Gunn	Kgunn@LucasOil.com	899 Woodley Pl Encinitas
2. Angelica Pedler	aspedler e gmail.com	1128 Sidonia St.
3. Courtney Kensing	courtneykensing@gmail.com	241 Delphinium St. En
4. MARK TULLER	tullermark@gmail.com	1428 LAUREN CT ENC
5. Brian Carl	bcc5036e yahoo.com	1201 Sidonia St
6. BOB ECHTER	bechter@dugmechter.com	1150 Quail Garden Dr.
7. PATRICIA POLLOCK	~~pgs~~ PG POLLOCK@icloud.com	1050 PASSIFLORA
8. Coralynn Williams	LORALYNN8@gmail.com	
9. Douglas Shaw	dougshaw711@gmail.com	1185 Sidonia St,
10. Rebecca Meade	meade.rebecca@icloud.com	1050 Guilford Ct.
11. Eric & Renee Norling	rnorling@cox.net	1017 Guilford Ct.
12. Connie & Kim Brownell	Kbrownell@gmail.com	1786 Steelhead Trail Dr Encinitas, CA
13. Dave Michelson	927 Oldham CT	
14. Dave Michelson	Davitc5bc global.net	927 Oldham CT, Encinitas 92024
15. Ron Dodge	744 Lotus Blossom St	ENCINITAS 92024
16. Kris Powell	fit2bewell@gmail.com	136 E Jason Ave Leucadia 92024
17. MARY CONWAY.	MIWCONWAY@GMAIL.COM	575 Arden Dr. Encinitas
18. Kris JOHNSON	Kristopher.p.johnson@gmail	1408 LAUREN CT 92024 Enc. 92024
19. Brian Carl	bcc5036@yahoo.com	1201 Sidonia St
20. Joe Williams	WILLIAJT@GMAIL.COM	1017 ST. ALBANS DR.
21.		
22. GLEN JOHNSON	GLEN_D_J@MACBELL.NET	537 KRISTEN COURT
23.		
24.		
25.		
26.		
27.		

FOX POINT FARMS

CULTIVATING COMMUNITY THROUGH AGRICULTURE

If you would like to stay informed and be invited to future Fox Point Farms events, please sign up below!

NAME	EMAIL	ADDRESS
1. KATHLEEN CEES	Mcmillenlees@cox.net	1075 Urania Ave
2. Gerald Sodomka	gsbotanico@dslextreme.com	105 Mozart Ave. Cardiff
3. Heather Cole	hea.cole73@gmail.com	Passiflora Ave
4. Angelica Pedler	aspedler@gmail.com	1128 Sidonia St
5. Barry Pedler	bazpedler@gmail.com	1128 Sidonia St.
6. DAVID SHEERON	DSHEERON@gmail.com	1171 SIDONIA ST.
7. Peggy Williams	peghomemail@yahoo.com	1017 St. Albans Drive
8.		
9.		
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FOX POINT FARMS
CULTIVATING COMMUNITY THROUGH AGRICULTURE

Existing Site Conditions – Dramm & Echter commercial agriculture



Proposed Community – Fox Point Farms



Site Plan



Site Plan


SIDONIA ST.
LEUCADIA BLVD.
QUAIL GARDENS DRIVE
1
2
3
4
5
6
7
8
9
10
11
12
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21
22
23
24

Site Plan



Site Plan



Quality apartment homes with modern farmhouse architecture



For-sale cottage/carriage homes designed for multigenerational living



Character imagery – agricultural amenity area



Greenhouse with Community Workspace



Restaurant Interior



Greenhouse Interior



Entry Signage on Silo



Restaurant Patio



Outdoor Education Patio



Patio/Farm to Table Dining Area



Discovery Garden



Bark Park



Event Lawn



Outdoor Education Patio - Classes



Dining Terrace

Character imagery – recreation area and other amenities


Covered Patio at Community Building


Pool at Community Building


Pool at Community Building


Outdoor Fire Pit


Garden View Swings


Nature Play


Library Seating Nook


Fitness Nodes


Natural Stone Walls


Rain Gardens Along Loop Trail


Perimeter Trail with Groves of Fruit Trees


Community Gardens

Permits and City Development Standards

- Tentative Map, Design Review Permit, Coastal Development Permit, and Major Use Permit
- Project meets City code parking requirements, mostly in garages
- Focused 2-story buildings around the perimeter of the site
- Waiver requests under State Density Bonus Law – NOT for additional units or height

Proposed Community – Fox Point Farms



Design Team

- Steinberg Hart (architect) – Daniel Stewart and Hannah Hobbs
- Schmidt Design Group (landscape architect) – Glen Schmidt and Jennifer Montgomery
- Pasco Laret Suiter (civil engineer) – Tyler Lawson and Tadd Dolfo

Next Steps

- Upcoming site tour – sign-up sheet at back table
- In-person meetings
- CEQA process is just beginning, with various opportunities for public input

Contact Us

We look forward to working with you!

Brian Grover and Sean Kilkenny
Nolen Communities
bgrover@nolencommunities.com

NOLEN
COMMUNITIES


FOX POINT FARMS
CULTIVATING COMMUNITY THROUGH AGRICULTURE

MAX. OCC. 107

FOX POINT FARMS
CULTIVATING COMMUNITY THROUGH AGRICULTURE

MEETING AGENDAS

SPEAKER SLIPS
ORAL COMMUNICATIONS
TO SPEAK ON ITEMS LISTED ON THE AGENDA

SPEAKER SLIPS
AGENDA ITEMS
TO SPEAK ON ITEMS LISTED ON THE AGENDA

EXIT

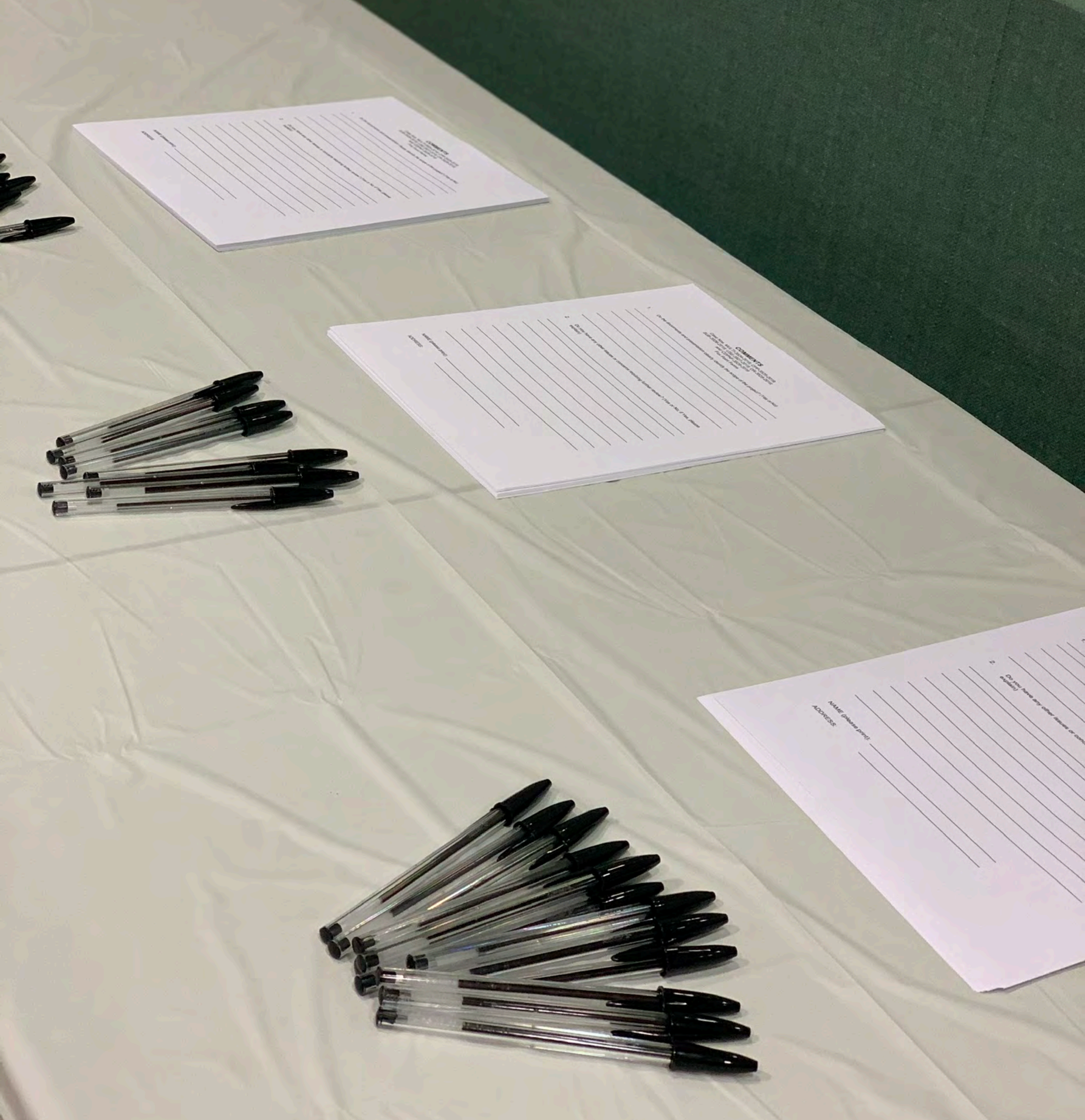
AMENITIES


CITY OF ENCINITAS
Incorporated 1986
GENERAL


POINT FARMS

FOX POINT FARMS

CULTIVATING COMMUNITY THROUGH AGRICULTURE


COMMENTS
NAME (please print)
ADDRESS
2. Do you have any other issues or concerns relating to the proposal? If so, please explain.


Contact Us
We look forward to working with you!
ROLEN COMMUNITIES
Contact Us
We look forward to working with you!
ROLEN COMMUNITIES
Contact Us
We look forward to working with you!
ROLEN COMMUNITIES
MAX. OCC. 107
CIVIL DESIGN


Proposed Community – Fox Point Farms
EXIT


CITY OF ENCINITAS
Incorporated 1986


Fox Point Farms


Contact Us
We look forward to working with you!
NOLEN COMMUNITIES


Contact Us
EXIT


Contact Us
We look forward to working with you!
NOLEN
EXIT


FOX POINT FARMS
CULTIVATING COMMUNITY THROUGH AGRICULTURE
CITY OF ENCINITAS
Incorporated 1986
ARCHITECT
GENERAL

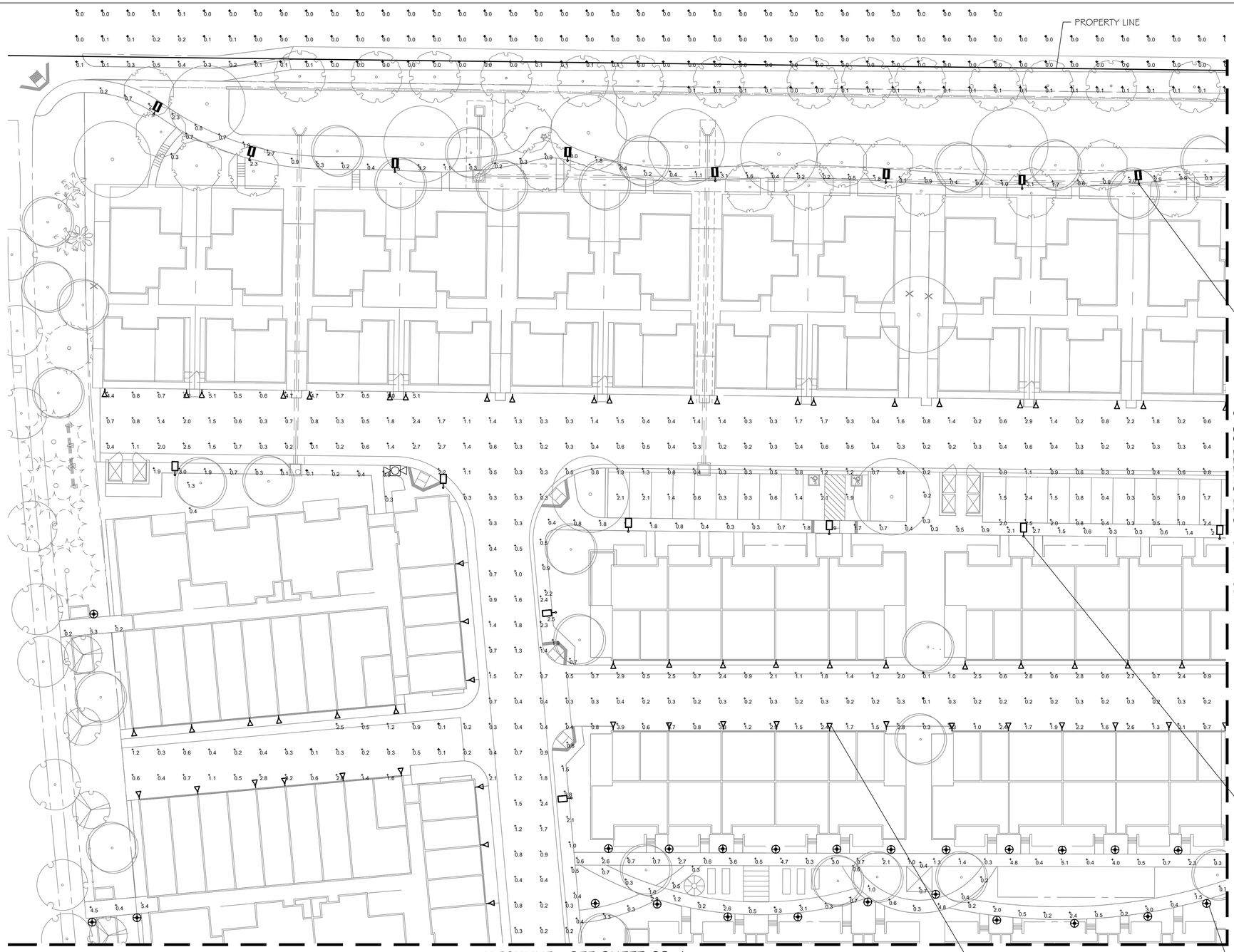

Quality apartment homes with modern farmhouse architecture

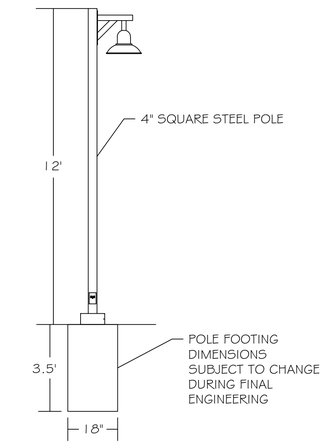



CITY OF ENCINITAS
Incorporated 1986

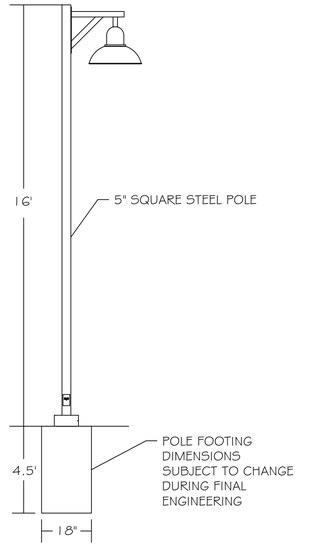
APPENDIX B CONCEPTUAL LIGHTING PLAN

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NATIONAL LIGHTING SOLUTIONS
CALIFORNIA SMALL
18W LED PEDESTRIAN LIGHT @ 12'
SEE DETAIL 'A' SHEET CS-6
(TYP. ALL)



NATIONAL LIGHTING SOLUTIONS
CALIFORNIA - 1
36W LED STREET LIGHT @ 16'
SEE DETAIL 'A' SHEET CS-6
(TYP. ALL)



NATIONAL LIGHTING SOLUTIONS
SEASIDE BOLLARD
17W LED BOLLARD 8" SQUARE x 42" TALL
SEE DETAIL 'B' SHEET CS-6
(TYP. ALL)

ARCHITECTURAL WALL LIGHT. EXACT LOCATIONS SET BY ARCHITECT. ALL LIGHTS CONTROLLED BY PHOTOCELL.
SEE DETAIL 'D' SHEET CS-6

Luminaire Schedule							
Symbol	Qty	Label	Arrangement	LLF	Description	Lum. Watts	Lum. Lumens
	42	STREET LIGHT	SINGLE	0.900	CAL-S-T3-16L-7-30K @ 16'	36	3708
	6	STREET LIGHT W/PEDESTRIAN LIGHT	DOUBLE	0.900	CAL-S-T3-16L-7-30K @ 16' & CAL-S-XXX-XX-T4-16L-35-30K @ 12'	54	3708 & 1872
	3	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-T3-16L-35-30K @ 12'	18	1854
	5	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-XXX-XX-T4-16L-35-30K @ 12'	18	1872
	2	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-T5-16L-35-30K @ 12'	18	1800
	31	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-T2-16L-35-30K	18	1836
	73	BOLLARD	SINGLE	0.900	SSX-2-8R-COG-45-16L-35-30K SEASIDE BOLLARD 26_	17	765
	240 LF	FESTOON LIGHTING	SINGLE	0.910	DURA LAMP - STARGAZER - E26-22-1-D-SP @ 12' MOUNTING HEIGHT - 2' O.C.	0.6	20
	14	TREE ACCENT/MONUMENT LIGHT	SINGLE	N/A	TERON LIGHTING - CHAPARRAL SMALL - L5.3-120-277V-WFL-BZ-30K	5.3	425
	216	ARCHITECTURAL WALL LIGHT	SINGLE	0.900	W508M009LDNW40K @ 8' - SPECIFIED BY OTHERS	11.59	650
	3	WATER TOWER MONUMENT LIGHT	SINGLE	0.900	A814	12	72

NOTE:

ANY CHANGE OR DEVIATION FROM THE LIGHTING SPECIFICATIONS ON PLAN SHALL INVALIDATE THIS PHOTOMETRIC ANALYSIS.

NORTH

0' 15' 30' 60'
SCALE: 1"=30'-0"

VISUAL CONCEPTS LIGHTING INC.
OFF: 858-278-4583
9858 MERIDIAN ST. STE. 210, SAN DIEGO, CA 92131
WWW.VISUALCONCEPTS-INC.COM

Project:
FOX POINT
ENCINITAS, CA.

Client:
NOLEN COMMUNITIES

REGISTERED PROFESSIONAL ENGINEER
CHARLES CHOU
No.E-21276
Exp. 9/30/21
ELECTRICAL
STATE OF CALIFORNIA

Revisions:
1ST REV. 02-05-2020
2ND REV. 02-20-2020
3RD REV. 05-12-2020
4TH REV. 05-28-2020

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Date:	01/31/20
Job No.:	SVH20/01071

Sheet Title:
CONCEPTUAL LIGHTING PLAN 1

Sheet Reference:
CS-1

Sheet: 1 of 6

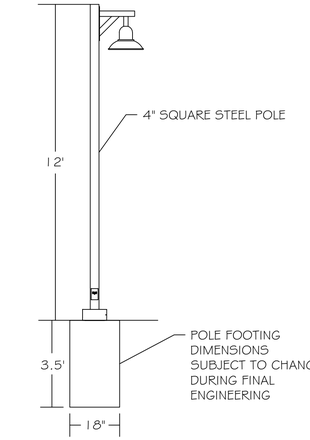
PROPERTY LINE

TERON LIGHTING
CHAPARRAL SMALL
5.3W LED MONUMENT LIGHT
SEE DETAIL 'B' SHEET CS-6.
(TYP. ALL)

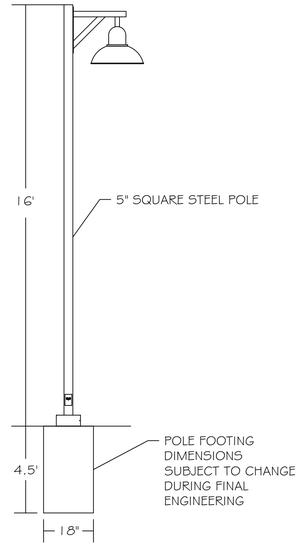
MATCHLINE - SEE SHEET CS-1

MATCHLINE - SEE SHEET CS-3

ARCHITECTURAL WALL LIGHT. EXACT LOCATIONS SET BY ARCHITECT. ALL LIGHTS CONTROLLED BY PHOTOCELL.
SEE DETAIL 'D' SHEET CS-6



NATIONAL LIGHTING SOLUTIONS
CALIFORNIA SMALL
18W LED PEDESTRIAN LIGHT @ 12'
SEE DETAIL 'A' SHEET CS-6
(TYP. ALL)



NATIONAL LIGHTING SOLUTIONS
CALIFORNIA - 1
36W LED STREET LIGHT @ 16'
SEE DETAIL 'A' SHEET CS-6
(TYP. ALL)



NATIONAL LIGHTING SOLUTIONS
SEASIDE BOLLARD
17W LED BOLLARD 8" SQUARE x 42" TALL
SEE DETAIL 'B' SHEET CS-5.
(TYP. ALL)

Luminaire Schedule							
Symbol	Qty	Label	Arrangement	LLF	Description	Lum. Watts	Lum. Lumens
	42	STREET LIGHT	SINGLE	0.900	CAL-S-T3-16L-7-30K @ 16'	36	3708
	6	STREET LIGHT W/PEDESTRIAN LIGHT	DOUBLE	0.900	CAL-S-T3-16L-7-30K @ 16' & CAL-S-XXX-XX-T4-16L-35-30K @ 12'	54	3708 & 1872
	3	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-T3-16L-35-30K @ 12'	18	1854
	5	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-XXX-XX-T4-16L-35-30K @ 12'	18	1872
	2	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-T5-16L-35-30K @ 12'	18	1800
	31	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-T2-16L-35-30K	18	1836
	73	BOLLARD	SINGLE	0.900	SSX-2-8R-COG-45-16L-35-30K SEASIDE BOLLARD 26_	17	765
	240 LF	FESTOON LIGHTING	SINGLE	0.910	DURA LAMP - STARGAZER - E26-22-1-D-SP @ 12' MOUNTING HEIGHT - 2' O.C.	0.6	20
	14	TREE ACCENT/MONUMENT LIGHT	SINGLE	N/A	TERON LIGHTING - CHAPARRAL SMALL - L5.3-120-277V-WFL-BZ-30K	5.3	425
	216	ARCHITECTURAL WALL LIGHT	SINGLE	0.900	W508M009LDNW40K @ 8' - SPECIFIED BY OTHERS	11.59	650
	3	WATER TOWER MONUMENT LIGHT	SINGLE	0.900	A814	12	72

NOTE:

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REGISTERED PROFESSIONAL ENGINEER
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Job No.:	SHH20/01071

Sheet Title:
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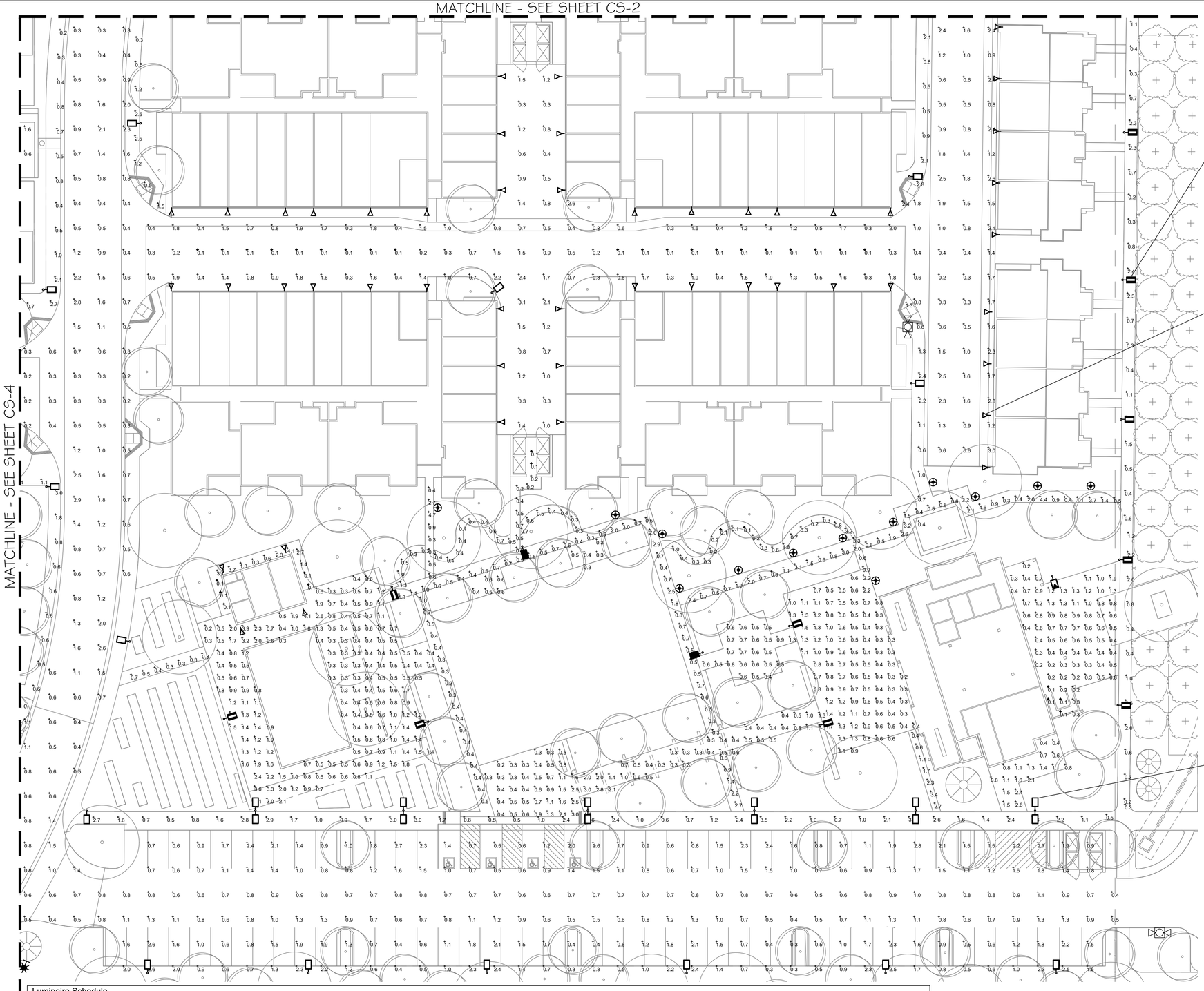
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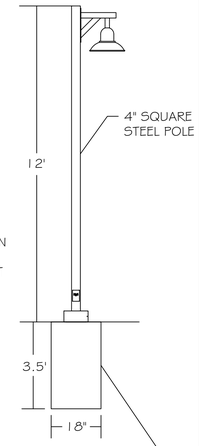
Sheet: 2 of 6

MATCHLINE - SEE SHEET CS-2

MATCHLINE - SEE SHEET CS-4

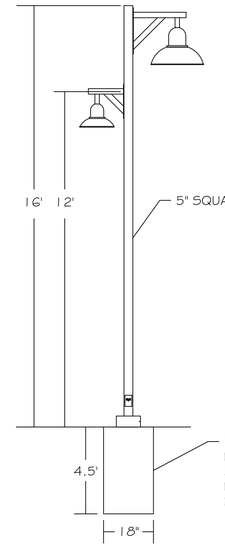


NATIONAL LIGHTING SOLUTIONS
CALIFORNIA SMALL
18W LED PEDESTRIAN LIGHT @ 12'
SEE DETAIL 'A' SHEET CS-5.
(TYP. ALL)



POLE FOOTING DIMENSIONS SUBJECT TO CHANGE DURING FINAL ENGINEERING

ARCHITECTURAL WALL LIGHT. EXACT LOCATIONS SET BY ARCHITECT. ALL LIGHTS CONTROLLED BY PHOTOCELL. SEE DETAIL 'D' SHEET CS-5.



POLE FOOTING DIMENSIONS SUBJECT TO CHANGE DURING FINAL ENGINEERING

NATIONAL LIGHTING SOLUTIONS
CALIFORNIA - 1
LED STREET LIGHT / PEDESTRIAN COMBO @ 16'
SEE DETAIL 'A' SHEET CS-5.
(TYP. ALL)



NATIONAL LIGHTING SOLUTIONS
SEASIDE BOLLARD
17W LED BOLLARD 8" SQUARE x 42" TALL
SEE DETAIL 'B' SHEET CS-5.
(TYP. ALL)

Luminaire Schedule

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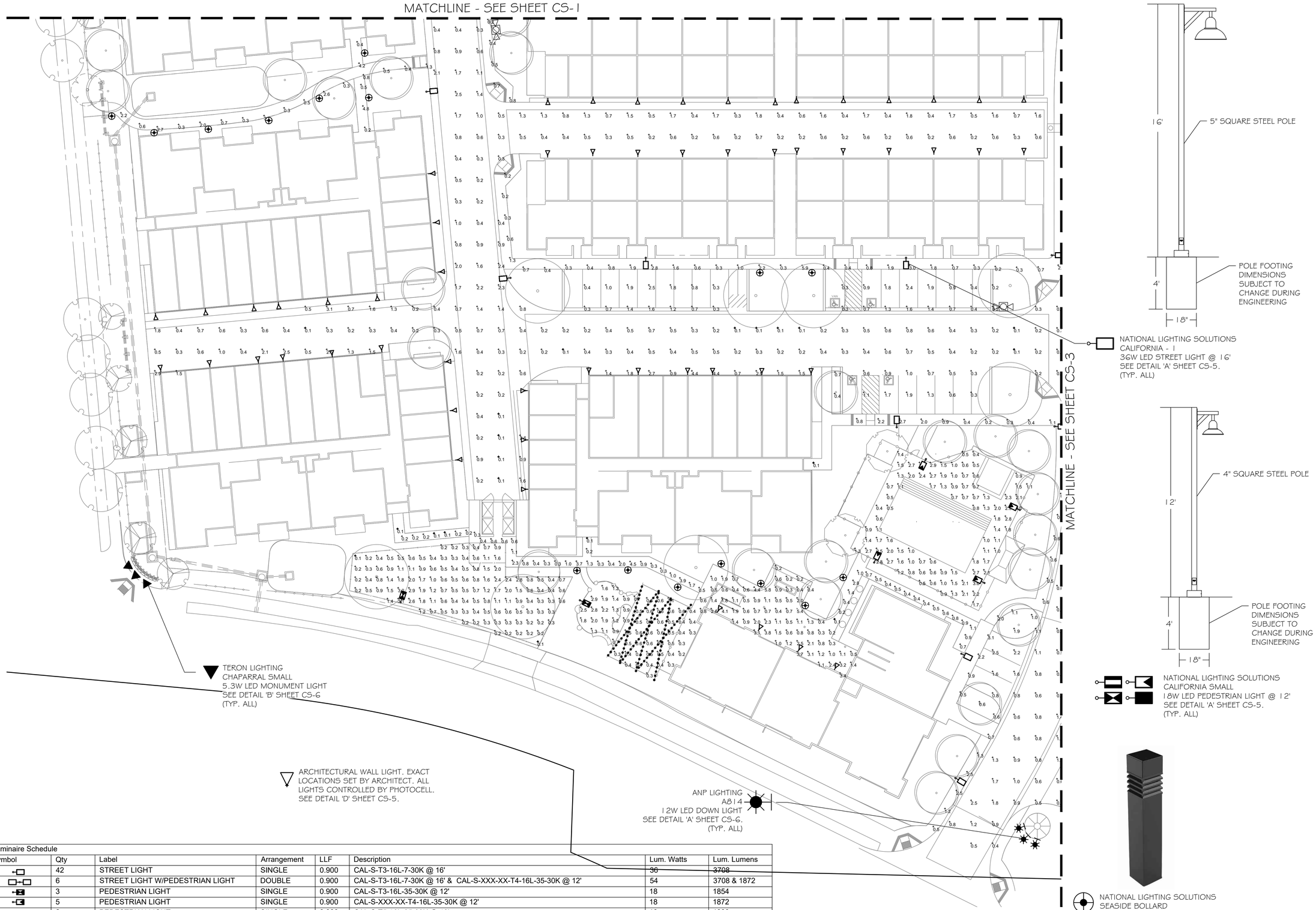
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Job No.:	SHH20010171

Sheet Title:
CONCEPTUAL LIGHTING PLAN 3

Sheet Reference:

CS-3

Sheet: 3 of 6



Luminaire Schedule							
Symbol	Qty	Label	Arrangement	LLF	Description	Lum. Watts	Lum. Lumens
	42	STREET LIGHT	SINGLE	0.900	CAL-S-T3-16L-7-30K @ 16'	36	3708
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	216	ARCHITECTURAL WALL LIGHT	SINGLE	0.900	W508M009LDNW40K @ 8' - SPECIFIED BY OTHERS	11.59	650
	6	WATER TOWER MONUMENT LIGHT	SINGLE	0.900	A814	12	72

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4TH REV. 05-28-2020

Sheet Info:

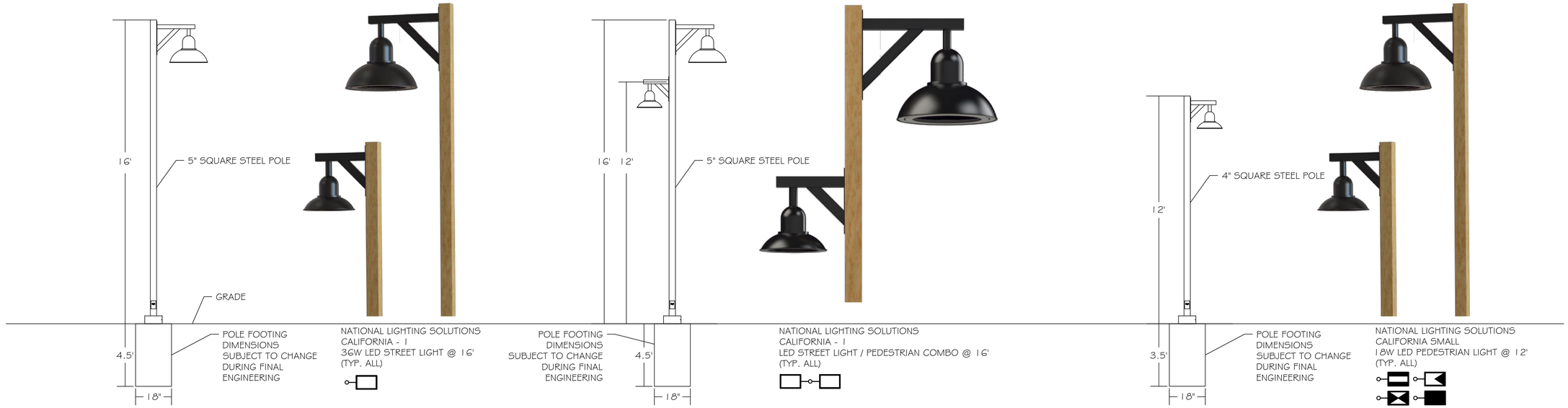
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Checked By:	KPSR
Scale:	N/A
Date:	01/31/20
Job No.:	SHH20/01071

Sheet Title:
CONCEPTUAL LIGHTING PLAN 4

Sheet Reference:

CS-4

Sheet: 4 of 6



POLE FOOTING DIMENSIONS SUBJECT TO CHANGE DURING FINAL ENGINEERING

NATIONAL LIGHTING SOLUTIONS
CALIFORNIA - 1
36W LED STREET LIGHT @ 16'
(TYP. ALL)

POLE FOOTING DIMENSIONS SUBJECT TO CHANGE DURING FINAL ENGINEERING

NATIONAL LIGHTING SOLUTIONS
CALIFORNIA - 1
LED STREET LIGHT / PEDESTRIAN COMBO @ 16'
(TYP. ALL)

POLE FOOTING DIMENSIONS SUBJECT TO CHANGE DURING FINAL ENGINEERING

NATIONAL LIGHTING SOLUTIONS
CALIFORNIA SMALL
18W LED PEDESTRIAN LIGHT @ 12'
(TYP. ALL)

NO SCALE

A STREET LIGHT AND PEDESTRIAN LIGHT



NATIONAL LIGHTING SOLUTIONS
SEASIDE BOLLARD
17W LED BOLLARD 8" SQUARE x 42" TALL
(TYP. ALL)

NO SCALE

B BOLLARD



DURALAMP
DURALED CABLE LIGHT W/ STARGAZER LED BULB
2' O.C. BUILB SPACING MOUNTED TO 12' TALL STEEL POLES
(TYP. ALL)

NO SCALE

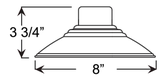
C FESTOON LIGHTING

ARCHITECTURAL WALL LIGHT. EXACT LOCATIONS SET BY ARCHITECT. ALL LIGHTS CONTROLLED BY PHOTOCELL.

ANP Lighting — Specifications MC08

Project: BAYSIDE COVE
Fixture Type: _____ Quantity: _____
Customer: LENNAR HOMES





Specifications

Material:
RLM shades are constructed of heavy duty spun aluminum. Wall back plate and driver housing are cast aluminum. All fasteners are stainless steel. Inside of shade is reflective white finish for all colors except galvanized paint finish. Screw hardware may not match paint.

Electrical:
Universal voltage 120-277 is standard. 0-10V, TRIAC and ELV dimming protocols are standard. (2Wire is 0-10v only) See page 2 table for LED module and driver specs, voltage and dimming protocols.

Certifications:
Cord mounts are UL Listed for dry locations. Arm mount, stem mount and wall mount are UL Listed for wet locations.

Finish:
A polyester powder coat high quality finish is electro-statically applied and baked at 430° for exceptional durability and color retention. Products undergo an intensive five-step cleansing and pretreatment process for maximum paint adhesion.

Marine grade finish provides superior salt, humidity and UV protection. This coating withstands up to 3000 hours of continuous salt spray, comes with a 5-year warranty and is available in either a textured or gloss surface.

Modifications:
Consult factory for custom or modified designs.

MC08
LED

Weight: 1 lb

Catalog Logic

MC08	M009LD	D	W	40K	RTC	UNV	E15	PC	41
RLM Style	Light Source & Wattage	Dimming	Distribution	CCT	Driver Housing	Voltage	Mounting	Accessories	Finish

Catalog Number

1	2	3	4	5	6	7	8	9
MC08	M009LD	D	N	30K		UNV	WM40	PC-HOUSE	102

1 LIGHT SOURCE & WATTAGES
- GU24 (GU24 Socket Only)
- M009LD (9w, 850 lumen, Cree module)

2 DIMMING
- 0* (Standard 0-10v, TRIAC and ELV dimming)
- S (Sunset dimming: Dims smoothly from 2700K to 1800K, 9w only)

See page 2 for dimming protocols and limitations.

3 DISTRIBUTION
- W (T5 Wide Distribution with Dome LED Lens)
- N* (T5 Narrow Distribution with Flat LED Lens)

4 COLOR TEMPERATURE (CCT)
- 27K (2700K)
- 30K (3000K) (Not Sunset Dim)
- 35K (3500K) (Not Sunset Dim)
- 40K (4000K) (Not Sunset Dim)

5 DRIVER HOUSING
- RTC (Driver Canopy)
- RTCNC (Driver Canopy/No Spun Cover)

6 VOLTAGE
- UNV (120-277)

7 MOUNTING SOURCES

Arm Mounts (Cast back plate included (CB))
- E15 E20 E22 E23 E26

Wall Mounts
- WM40
- WM74
- WM317
- WM84

Cord Mounts
- BLC (6' black cord with 1" x 5 3/8" canopy)
- WHC (6' white cord with 1" x 5 3/8" canopy)
- COLOR CORD: Use Color Cord designation from page 4.
- *Canopy finish will match fixture finish.

Stem Mounts
1/2" (13/16" OD Rigid Stems with STC Flat Canopy)
- 2ST6 2ST12 2ST18 2ST24 2ST36 2ST48
- 2ST60 2ST72 2ST96

3/4" (1" OD Rigid Stems with STC Flat Canopy)
- 3ST6 3ST12 3ST18 3ST24 3ST36 3ST48
- 3ST60 3ST72 3ST96

8 ACCESSORIES
- CBC (Cast back plate Spun Alum Cover)
- *EMG-LED5 (5w, LED Emergency Driver, remote placement, Cree module only)
- *EMG-LED7 (7w, LED Emergency Driver, remote placement, Cree module only)
- *EMG-LED10 (10w, LED Emergency Driver, remote placement, Cree module only)
- GR08 (08" Wire Grill)
- PC (Button Photo Cell) Remote Only
- SC (Scroll for Arms)
- SLC (Sloped Ceiling Mount, 20° Max)
- SQ (Square Back Plate)
- SWL (Swivel)
- TBK (Turn Buckle Kit)
- *For Emergency lumen output data, see Resources section at www.ANPlighting.com.

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ANPlighting.com

10182018

NO SCALE

D ARCHITECTURAL WALL LIGHT

Luminaire Schedule							
Symbol	Qty	Label	Arrangement	LLF	Description	Lum. Watts	Lum. Lumens
	42	STREET LIGHT	SINGLE	0.900	CAL-S-T3-16L-7-30K @ 16'	36	3708
	6	STREET LIGHT W/PEDESTRIAN LIGHT	DOUBLE	0.900	CAL-S-T3-16L-7-30K @ 16' & CAL-S-XXX-XX-T4-16L-35-30K @ 12'	54	3708 & 1872
	3	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-T3-16L-35-30K @ 12'	18	1854
	5	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-XXX-XX-T4-16L-35-30K @ 12'	18	1872
	2	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-T5-16L-35-30K @ 12'	18	1800
	31	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-T2-16L-35-30K	18	1836
	73	BOLLARD	SINGLE	0.900	SSX-2-8R-COG-45-16L-35-30K SEASIDE BOLLARD 26_	17	765
	240 LF	FESTOON LIGHTING	SINGLE	0.910	DURA LAMP - STARGAZER - E26-22-1-D-SP @ 12' MOUNTING HEIGHT - 2' O.C.	0.6	20
	14	TREE ACCENT/MONUMENT LIGHT	SINGLE	N/A	TERON LIGHTING - CHAPARRAL SMALL - L5.3-120-277V-WFL-BZ-30K	5.3	425
	216	ARCHITECTURAL WALL LIGHT	SINGLE	0.900	W508M009LDNW40K @ 8' - SPECIFIED BY OTHERS	11.59	650
	6	WATER TOWER MONUMENT LIGHT	SINGLE	0.900	A814	12	72

NOTE:

ANY CHANGE OR DEVIATION FROM THE LIGHTING SPECIFICATIONS ON PLAN SHALL INVALIDATE THIS PHOTOMETRIC ANALYSIS.

VISUAL CONCEPTS LIGHTING INC.
PH: 858-270-4503
4858 MERIDIAN ST. STE. 210, SAN DIEGO, CA 92117
WWW.VISUALCONCEPTS-INC.COM

Project:
FOX POINT
ENCINITAS, CA.

Client:
NOLEN COMMUNITIES

REGISTERED PROFESSIONAL ENGINEER
CHARLES CHOE
No.E-21276
Exp. 9/30/21
ELECTRICAL
STATE OF CALIFORNIA

Revisions:
- 1ST REV. 02-05-2020
- 2ND REV. 02-20-2020
- 3RD REV. 05-12-2020
- 4TH REV. 05-28-2020

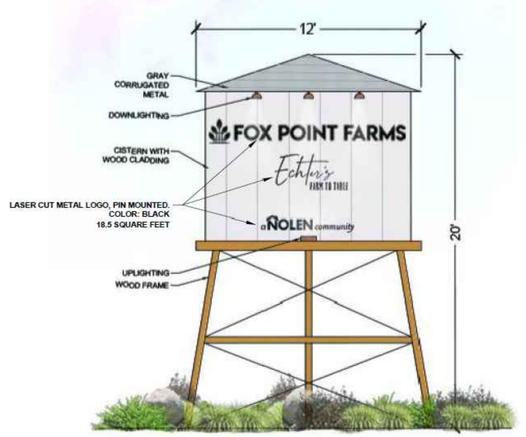
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Checked By:	KPSR
Scale:	N/A
Date:	01/31/20
Job No.:	SHH20/01071

Sheet Title:
SPECIFICATIONS

Sheet Reference:
CS-5

Sheet: 5 of 6



ANP LIGHTING
A814
(3) 12W LED DOWN LIGHTS PER MONUMENT
MOUNTED ON 26" HOOK ARM (E6)

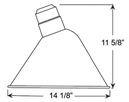


ANP LIGHTING
A814
(2) 12W LED DOWN LIGHTS
MOUNTED ON 26" HOOK ARM (E6)

ANP Lighting — Specifications A814

Project: _____
Fixture Type: _____ Quantity: _____
Customer: _____





A814
LED

Weight: 1.5 lb

Specifications

Material:
RLM shades are constructed of heavy duty spun aluminum. Wall back plate and driver housing are cast aluminum. All mounting hardware provided shall be stainless steel. White finish for all colors except galvanized paint finish. Screw hardware may not match paint.

Electrical:
Universal voltage 120-277 is standard. 0-10V, TRIAC and ELV dimming protocols are standard. (12w is 120v and 24w is 0-10v only)

See page 2 table for LED module and driver specs, voltage and dimming protocols.

Certifications:
Cord mounts are UL Listed for dry locations. Arm mount, stem mount and wall mount are UL Listed for wet locations.

Finish:
A polyester powder coat high quality finish is electro-statically applied and baked at 430°. For exceptional durability and color retention. Products undergo an intensive five-step cleansing and pretreatment process for maximum paint adhesion.

Marine grade finish provides superior salt, humidity and UV protection. This coating withstands up to 3000 hours of continuous salt spray, comes with a 5-year warranty and is available in either a textured or gloss surface.

Modifications:
Consult factory for custom or modified designs.

Catalog Logic

A814	M024LD	D	W	40K	RTC	UNV	E6	100GLCL	PC	41
RLM Style	Light Source & Wattage	Dimming	Distribution	CCT	Driver Housing	Voltage	Mounting	Glass & Guard	Accessories	Finish

Catalog Logic

1	2	3	4	5	6	7	8	9	10
A814	M012LD	D	N	30K	NA	UNV	E6	???	NA	73

1 LIGHT SOURCE & WATTAGES

GU24	(GU24 Socket Only; **120v only**)
M012LD	(12w, 750 lumen, Cree module) Integral driver; 120V, TRIAC dimming & narrow distribution only.
M009LD	(9w, 850 lumen, Cree module)
M010LD	(10w, 1250 lumen, Cree module)
M016LD	(16w, 2000 lumen, Cree module)
M024LD	(24w, 3000 lumen, Cree module)

2 DIMMING

D (Standard 0-10v, TRIAC and ELV dimming)
S (Liquid dimming- Dims smoothly from 2700K to 1800K **9w only**)
***12w is dimming only, select "D".**
See page 2 for dimming protocols and limitations.

3 DISTRIBUTION

W (T5 Wide Distribution with Dome LED Lens)
N* (T5 Narrow Distribution with Flat LED Lens)
***12w is narrow only, select "N".**

4 COLOR TEMPERATURE (CCT)

27K	(2700K)
30K	(3000K) (Not Sunset Dim)
35K	(3500K) (Not Sunset Dim)
40K	(4000K) (Not Sunset Dim)

5 DRIVER HOUSING

RTC	(Driver Canopy)
RTCNC	(Driver Canopy/No Spun Cover)
NA	(Housing not required for 12w LED or Wall Mounts)

6 VOLTAGE

UNV	(120-277)

7 MOUNTING SOURCES

Arm Mounts (Cast back plate included (CB))
E3 E4 E6 E7 E8 E10
E11 E12 E18 E25
(See Step 5 for Driver Housing Options)

Wall Mounts
WM54
WM317

Stem Mounts
1/2" (13/16" OD Rigid Stems with STC Flat Canopy)
2ST6 2ST12 2ST18 2ST24 2ST36 2ST48
2ST60 2ST72 2ST96
3/4" (1" OD Rigid Stems with STC Flat Canopy)
3ST6 3ST12 3ST18 3ST24 3ST36 3ST48
3ST60 3ST72 3ST96
(See Step 5 for Driver Housing Options)

8 GLASS & GUARD

Up to 24w MAX

100GLCL	(Clear Glass)
100GLFR	(Frosted Glass)
100GLPR	(Prismatic Glass)
100GLCLGUP	(Clear Glass & Small Wire Guard)
100GLFRGUP	(Frosted Glass & Small Wire Guard)
100GLPRGUP	(Prismatic Glass & Small Wire Guard)
100GLCLGUPC	(Clear Glass & Cast Guard)
100GLFRGUPC	(Frosted Glass & Cast Guard)
100GLPRGUPC	(Prismatic Glass & Cast Guard)
100GLGUP	(Small Wire Guard with No Glass)
100GLGUPC	(Cast Guard with No Glass)

9 ACCESSORIES

CBC	(Cast back plate Spun Alum Cover)
GR14	(14" Wire Grill)
PC	(Button Photo Cell) Remote Only
***EMG-LED5**	(5w, LED Emergency Driver, remote placement, Cree module only)
***EMG-LED7**	(7w, LED Emergency Driver, remote placement, Cree module only)
***EMG-LED10**	(10w, LED Emergency Driver, remote placement, Cree module only)
SC	(Scroll for Arms)
SLC	(Sloped Ceiling Mount, 20° Max)
SQ	(Square Back Plate)
SWL	(Swivel)
TBK	(Turn Buckle Kit)

***For Emergency lumen output data, see Resources section at www.anplighting.com.**

10 FINISHES

Standard Grade	Marine Grade		Standard Grade	Marine Grade	
40	NA	Raw Unfinished	53	100	Copper Clay
41	101	Black	56	109	Silver
42	102	Forest Green	61	106	Black Verde
43	114	Bright Red	70	118	Painted Chrome
44	107	White	71	105	Painted Copper
45	112	Bright Blue	72	108	Textured Black
46	123	Sunny Yellow	73	125	Matte Black
47	120	Aqua Green	76	121	Textured Architectural Bronze
49	NA	Galvanized	77	127	Textured White
50	111	Navy	78	124	Textured Silver
51	103	Architectural Bronze	10	130	Aspen Green
52	104	Patina Verde	11	131	Cantaloupe
12	133	Lilac	13	132	Putty

Premium Grade	Marine Grade		Premium Grade	Marine Grade	
81	129	Extreme Chrome	64	116	Candy Apple Red
80	117	Textured Desert Stone	65	122	Cobalt Blue
67	119	Butterscotch	82	128	Graystone
66	115	Caramel	69	113	Gunmetal Gray
68	126	Black Silver	83	134	Oil Rubbed Bronze

Consult factory for additional paint charges and availability

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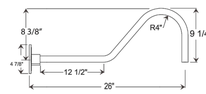
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ANPlighting.com

9515251B

ANP Lighting — Specifications E6

Project: _____
Fixture Type: _____ Quantity: _____
Customer: _____





E6
26" x 9 1/4"
Weight: 1.5 lbs

Specifications

General:
Due to size or weight, RLM arms may not accommodate all ANP RLM fixtures.

Cast back plate is provided as standard. Fits standard 4/0 junction box.

Material:
Arm is aluminum, Schedule 40, 3/4" ips. All parts are durable 356 cast aluminum. All mounting hardware provided shall be stainless steel or zinc plated steel and may not match finish.

Fixture Mounting:
Arm is threaded to attach to 3/4" fixture hub.

Electrical:
Pull wire provided with fixture.

Accessories:
Optional cast back plate cover (CBC) slides over arm and is secured to arm by a set screw.

Optional scroll (SC) is welded to arm per customer specification.

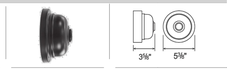
Finish:
A polyester powder coat high quality finish is electro-statically applied and baked at 430° for exceptional durability and color retention. Products undergo an intensive five-step cleansing and pretreatment process for maximum paint adhesion.

Marine grade finish provides superior salt, humidity and UV protection. This coating withstands up to 3000 hours of continuous salt spray, comes with a 5-year warranty and is available in either a textured or gloss surface.

Modifications:
Consult factory for custom or modified arms.

ACCESSORIES

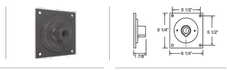
CBC
Cast Back Plate Cover (Spun Aluminum)



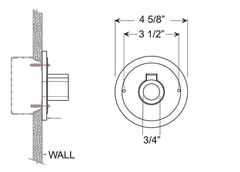
SC
Scroll



SQ
Square Back Plate



CAST BACK PLATE MOUNTING DETAIL



FINISHES

Standard Grade	Marine Grade		Standard Grade	Marine Grade	
40	NA	Raw Unfinished	53	100	Copper Clay
41	101	Black	56	109	Silver
42	102	Forest Green	61	106	Black Verde
43	114	Bright Red	70	118	Painted Chrome
44	107	White	71	105	Painted Copper
45	112	Bright Blue	72	108	Textured Black
46	123	Sunny Yellow	73	125	Matte Black
47	120	Aqua Green	76	121	Textured Architectural Bronze
49	NA	Galvanized	77	127	Textured White
50	111	Navy	78	124	Textured Silver
51	103	Architectural Bronze	10	130	Aspen Green
52	104	Patina Verde	11	131	Cantaloupe
12	133	Lilac	13	132	Putty

Premium Grade	Marine Grade		Premium Grade	Marine Grade	
81	129	Extreme Chrome	64	116	Candy Apple Red
80	117	Textured Desert Stone	65	122	Cobalt Blue
67	119	Butterscotch	82	128	Graystone
66	115	Caramel	69	113	Gunmetal Gray
68	126	Black Silver	83	134	Oil Rubbed Bronze

Consult factory for additional paint charges and availability

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ANP reserves the right to change material or design, without prior notice, in a continuing effort to upgrade its products.

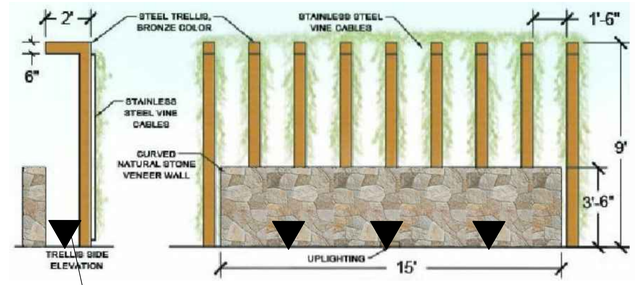
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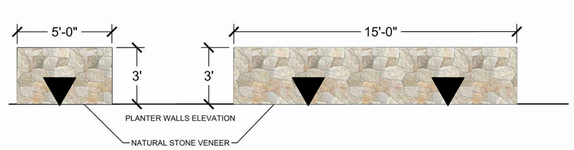
NO SCALE

A WATER TOWER / RESTAURANT SIGN LIGHT

Luminaire Schedule							
Symbol	Qty	Label	Arrangement	LLF	Description	Lum. Watts	Lum. Lumens
	42	STREET LIGHT	SINGLE	0.900	CAL-S-T3-16L-7-30K @ 16'	36	3708
	6	STREET LIGHT W/PEDESTRIAN LIGHT	DOUBLE	0.900	CAL-S-T3-16L-7-30K @ 16' & CAL-S-XXX-XX-T4-16L-35-30K @ 12'	54	3708 & 1872
	3	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-T3-16L-35-30K @ 12'	18	1854
	5	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-XXX-XX-T4-16L-35-30K @ 12'	18	1872
	2	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-T5-16L-35-30K @ 12'	18	1800
	31	PEDESTRIAN LIGHT	SINGLE	0.900	CAL-S-T2-16L-35-30K	18	1836
	73	BOLLARD	SINGLE	0.900	SSX-2-8R-COG-45-16L-35-30K SEASIDE BOLLARD 26_	17	765
	240 LF	FESTOON LIGHTING	SINGLE	0.910	DURA LAMP - STARGAZER - E26-22-1-D-SP @ 12' MOUNTING HEIGHT - 2' O.C.	0.6	20
	14	TREE ACCENT/MONUMENT LIGHT	SINGLE	N/A	TERON LIGHTING - CHAPARRAL SMALL - L5.3-120-277V-WFL-BZ-30K	5.3	425
	216	ARCHITECTURAL WALL LIGHT	SINGLE	0.900	W508M009LDNW40K @ 8' - SPECIFIED BY OTHERS	11.59	650
	6	WATER TOWER MONUMENT LIGHT	SINGLE	0.900	A814	12	72



TRELLIS ACCENT LIGHTS
(4) LIGHTS FOR TRELLIS ACCENT LIGHTING





TERON LIGHTING
CHAPARRAL SMALL LED
5.3W LED MONUMENT LIGHT
SETBACK 3' FROM WALL FACE
(TYP. ALL)

CHAPARRAL SM LED

Architectural Outdoor

PROJECT:
TYPE:
PO#: QTY:
COMMENTS:







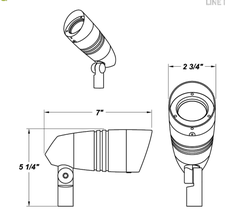


FEATURES

- 6 Year Limited Warranty
- Cast Aluminum Housing with Polyester Powder Coat Finish
- Center-to-Edge Uniformity and Enhanced Beam Control
- Integrated 4kv Surge Protection
- Integrated Cowl
- IP66 Rated - Dust and Waterproof
- LED Light Fixture
- Reinforced Knuckle Design
- Single LED Chip-on-Board Light Source
- Three-Step Binning For Tight Color Consistency
- UL Listed Wet Location
- Vandal Resistant
- Water Draining Front End

LINE DRAWING

LINE DRAWING NOT TO SCALE



FINISHES

Textured Architectural Bronze

Textured Black

TERON LIGHTING
TERONLIGHTING.COM
33 DONALD DR, FAIRFIELD, OH 45014
P: 513.858.6004 F: 513.858.6038
E: SALES@TERONLIGHT.COM

SEND CUT-SHEET

We reserve the right to revise the design components of any product due to parts availability or change in UL standards, without assuming any obligation or liability to modify any products previously manufactured, and without notice.

1

NO SCALE

B MONUMENT / TREE ACCENT LIGHT

NOTE: Luminaire Schedule

ANY CHANGE OR DEVIATION FROM THE LIGHTING SPECIFICATIONS ON PLAN SHALL INVALIDATE THIS PHOTOMETRIC ANALYSIS.

VISUAL CONCEPTS LIGHTING INC.
PH: 858-270-4503
9858 MERIDIAN ST. STE. 210, SAN DIEGO, CA 92131
WWW.VISUALCONCEPTSINC.COM

Project:
FOX POINT
ENCINITAS, CA.

Client:
NOLEN COMMUNITIES

REGISTERED PROFESSIONAL ENGINEER
CHARLES CHOE
No.E-21276
Exp. 9/30/21
ELECTRICAL
STATE OF CALIFORNIA

Revisions:
1ST REV. 02-05-2020
2ND REV. 02-20-2020
3RD REV. 05-12-2020
4TH REV. 05-28-2020

Sheet Info:

Drawn By:	KPJR
Checked By:	KPSR
Scale:	N/A
Date:	01/31/20
Job No.:	5HH20/01071

Sheet Title:
SPECIFICATIONS

Sheet Reference:
CS-6

Sheet: 6 of 6

APPENDIX C AIR QUALITY ASSESSMENT

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AIR QUALITY ASSESSMENT

Fox Point Farms
Case Nos. MULTI-3524-2019; CPP-3525-2019; SUB-3526-2019; DR-3528-2019; and CDPNF-3529-2019

City of Encinitas, CA

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Air Quality Impact Assessments (AQIA)

Assembly Bill 32 (AB32)

Reactive Organic Gas (ROG)

California Environmental Quality Act (CEQA)

Cubic Yards (CY)

Carbon Dioxide (CO_2)

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Nitrous Oxide (N_2O)

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Diesel Particulate Matter (DPM)

Level of Service (LOS)

San Diego Air Basin (SDAB)

Specific Plan Area (SPA)

Hazardous Air Pollutants (HAPs)

Toxic Air Contaminants (TACs)

Environmental Protection Agency (EPA)

California Air Resource Board (CARB)

San Diego Air Pollution Control District (SDAPCD)

Vehicle Miles Traveled (VMT)

National ambient air quality standards (NAAQS)

California Ambient Air Quality Standards (CAAQS)

Regional Air Quality Strategy (RAQS)

State Implementation Plan (SIP)

EXECUTIVE SUMMARY

This air quality assessment has been completed to determine the air quality impacts associated with the development of the proposed Fox Point Farms project. The project site is located in the northwest corner of the Leucadia Boulevard/Quail Gardens Drive intersection, in the Leucadia community of Encinitas, in central coastal San Diego County. The community would be situated on a 21.48-acre site and would consist of 53 for-sale cottages/carriage units/townhomes, 197 apartments, edible landscaping, community gardens, trails, a bocce court, social spaces, a community library, and a community recreation center. The project would also include a shared public/private agricultural amenity area including a farm-to-table restaurant, farm stand, event lawns, discovery garden, greenhouse and community event space, and an outdoor education patio. Lastly, the northern portion of the project site would remain in agricultural use, serving as an organic farm operation. Project design features (PDFs) have been included in this project. The applicant has agreed to implement all PDFs, which will be included in the project's Conditions of Approval and are shown in Section 1.3 of this report.

The project would take primary access from Quail Gardens Drive, and has an emergency access point at Sidonia Street. This technical report and the associated EIR analyze a "Sidonia Secondary Access Option" that would open the emergency access point up to full secondary access. Both the proposed project and the option call for identical construction requirements, and the site development plan would be the same.

All construction phases (i.e. Demolition, grading and construction) of the proposed project are anticipated to be complete sometime in late 2023 and full buildout operations are expected in 2024. The option identified would not change either the construction intensity or durations.

During construction of the proposed project, fugitive dust emissions will be expected during grading and construction operations. Based upon modeling results, these activities would generate less than significant air quality impacts when compared to screening thresholds established by the San Diego Air Pollution Control District (SDAPCD). Therefore, the project would not require mitigation. Also, based on the project size, emissions and relative location to nearby cumulative projects, the proposed project would generate less than significant cumulative construction impacts.

A diesel particulate matter (DPM) screening-level health risk assessment for construction was conducted to determine the project's potential for generating health risk impacts to nearby sensitive receptors during short-term construction activities. The result of the health risk assessment indicates that the proposed project would not increase diesel particulates to a level which would exceed the 10 in one million cancer risk threshold. Given this, impacts to health risks would be less than significant.

Air Quality emissions from the operations of the proposed project would not exceed significance thresholds established by the SDAPCD, and therefore would generate less than significant air quality impacts under CEQA.

A localized Carbon Monoxide (CO) "Hot Spot" analysis was conducted at the identified worst-case intersection (El Camino Real/Leucadia Boulevard) identified in the project traffic study. Using the CALINE4 source modeling software, it was determined that the proposed project would generate a less than significant CO impact at this location. Since all other intersections had fewer trips, all intersections where project trips are added can be considered less than significant as well as related to CO impacts. Finally, it should be noted that the "Sidonia Secondary Access Option" would have roughly the same project added trips to this intersection and would therefore have equal CO impacts, which are less than significant.

The proposed project has been designed to conform to the Housing Element of the City's General Plan. Also, the City has updated SANDAG with growth projections approved by the City within the Housing Element. Since the project has been designed in accordance with growth projections identified within the Housing Element, and since direct construction and operational impacts are not expected, the project would be consistent with San Diego's Regional Air Quality Strategy (RAQS) and would also conform to the State Implement Plan (SIP).

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the proposed project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment. Such odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be less than significant.

The proposed project would include composting of organic material and animal raising, which also would create odors. These uses are also consistent with the underlying zoning for the property, as well as the provisions of the Encinitas Ranch Specific Plan. Any such composting and animal operations would be located within the easternmost portion of the farm, in the northeast of the project site furthest from the existing Fox Point single-family homes. Because of the distance between these proposed uses and the nearest sensitive receptors, odors emitted from agricultural operations would be minimal. As a result, the project would not result in odor impacts from the organic farm operation.

The existing operations are required to operate in accordance with Title 3, Division 6, of the CCRs as identified in Section 2.7 of this report. The proposed project world reduce the existing agricultural operations by more than 50 percent and would accordingly utilize less pesticides, and

would still be required to comply with the same CCRs. Furthermore, the proposed project would implement natural growing methods and permaculture techniques, which would avoid the possibility of exposure to the community and surrounding area. Therefore, the proposed project would decrease pesticide use and continue to have a less than significant impact in regards to exposing sensitive receptors to synthetic chemicals from agricultural operations.

1.0 INTRODUCTION

1.1 Purpose of this Study

The purpose of this Air Quality Assessment is to determine potential air quality impacts (if any) that may be created by either construction or operational emissions (short term or long term) from the proposed project. Should impacts be determined, the intent of this study would be to recommend suitable mitigation measures to reduce impacts to the extent feasible.

1.2 Project Location

The project site is located at the northwest corner of the Leucadia Boulevard/Quail Gardens Drive intersection, in the Leucadia community of Encinitas, in central coastal San Diego County. The San Diego County Assessor's Parcel Number (APN) for the property is 254-612-12-00. The Encinitas Ranch Golf Course is located to the east of the project site. Leucadia Boulevard forms the southern boundary of the subject property. Existing single-family residential development lies west of the project site. The Magdalena Ecke Open Space Preserve borders the site along the entire northern property boundary.

The site is within walking/biking distance to Capri Elementary School (1.25 miles), shopping centers on El Camino Real (0.75 miles), Paul Ecke Sports Park and the YMCA (0.85 miles), and is 0.7 miles from the Leucadia Boulevard/Interstate 5 interchange. Transit stops are located on Leucadia Boulevard immediately adjacent to the site, providing residents with an affordable means of transportation to these community resources and jobs. Indian Head Canyon is located north of the property. A general Project vicinity map is shown in Figure 1-A of this report.

1.3 Project Description

The Fox Point Farms project proposes the development of an "agrihood" community on a 21.48-acre site located at 1150 Quail Gardens Drive. The property would be subdivided into four lots. Lot 1 would consist of 197 apartments, edible landscaping, community gardens, trails, a bocce court, social spaces, a community library, and a community recreation center. Lot 2 would consist of a shared public/private agricultural amenity area including a 3,500 square foot (SF) farm-to-table restaurant, farm stand, event lawns, discovery garden, greenhouse and community event space, and an outdoor education patio. Lot 3 would consist of an organic farm operation consistent with the existing land use, but converting above-ground flower growing operations into field row crops. Finally, Lot 4 would consist of 53 for-sale cottages/carriage units/townhomes. The proposed site development plan is shown on Figure 1-B.

The analysis includes a "Sidonia Secondary Access Option" to the proposed project which is limited to the project ingress/egress access only. Both the proposed project and the Option call for identical construction requirements, and the site development plan would be the same. The proposed project and Option are described as follows:

Proposed Project

1. *Full access at Quail Gardens Drive*
2. *Emergency access only along Sidonia Street*

Sidonia Secondary Access Option

1. *Full access at Quail Gardens Drive*
2. *Full access at Sidonia Street*

It is expected that the proposed project would begin construction in 2021 and be completed in 2023, with full occupancy and operations expected in 2024. During the demolition phase it is expected that 10,500 tons of debris would be generated through demolishing the onsite residential unit and greenhouses and will be exported offsite. The proposed project may also import up to 10,000 cubic yards (CY) of soil onsite for the farm area; however, if suitable soils are encountered onsite during grading, this import would not be required.

The project site is one of multiple sites included in the City of Encinitas Housing Element Update (HEU), which was adopted by the City of Encinitas on March 13, 2019. Subsequently, on June 13, 2019, the California Coastal Commission unanimously approved the Local Coastal Program Amendment (LCPA) associated with the City's Housing Plan Update 2019. On July 10, 2019, the City Council held a public hearing to review and consider the amendment specified in Ordinance No. 2019-08 and introduced and adopted Ordinance No. 2019-08, accepting the Coastal Commissions LCPA as amended. Finally, on October 8, 2019, the California Department of Housing and Community Development (HCD) certified the City's Housing Element. As part of these approvals, the project site was designated with an R-30 overlay and allocated between 246 units and 295 units.

As part of the City's HEU the City has provided a revised housing forecast to SANDAG to ensure that any revisions to the population and employment projections used by SDAPCD in updating the RAQS and the SIP. These updated projections will accurately reflect anticipated growth due to the HEU.

1.4 Project Design Features

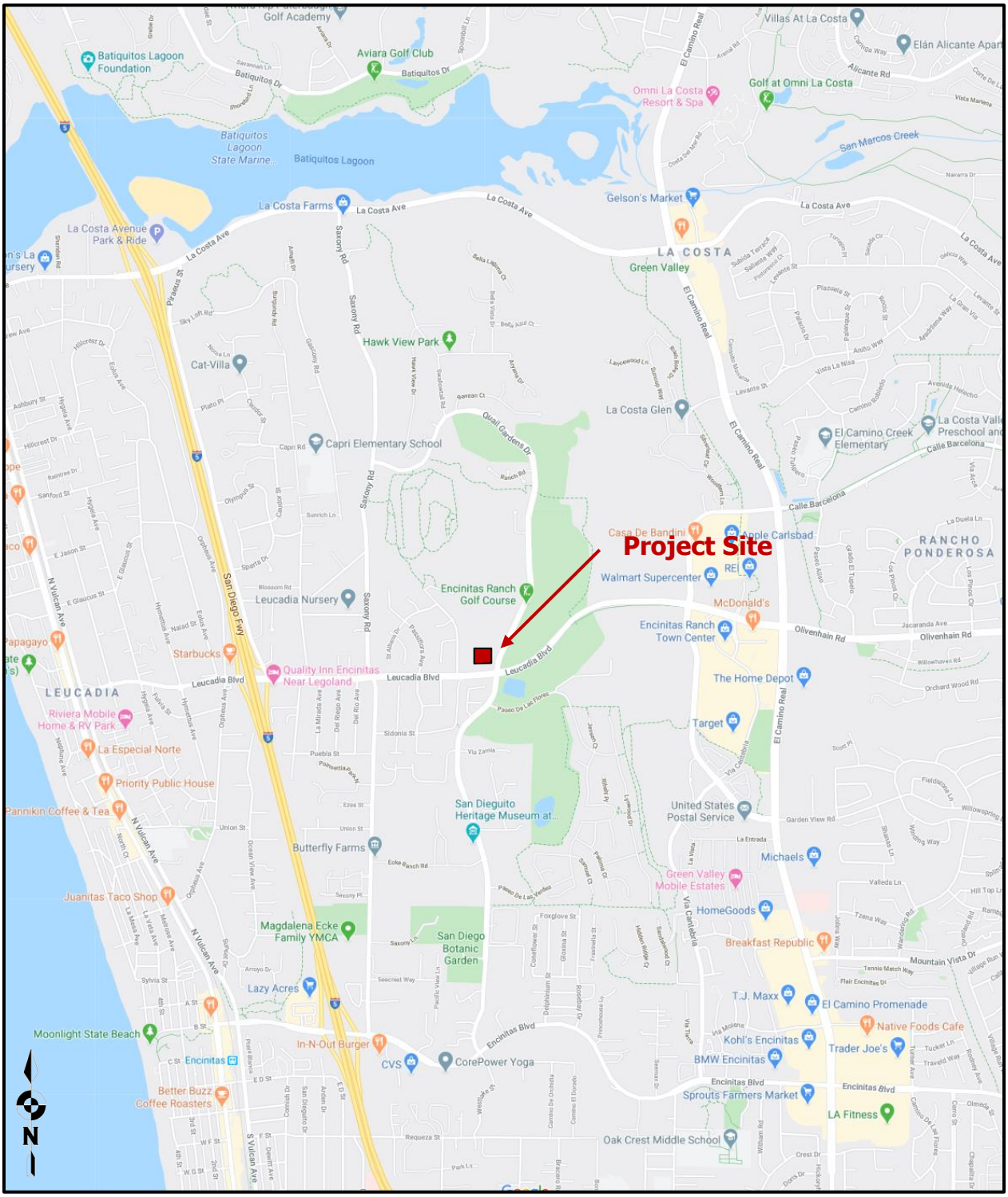
The proposed project would implement Project Design Features (PDFs) specifically chosen to reduce both greenhouse gas and air quality emissions. These PDFs would promote

sustainability through site design that would conserve energy, water, open space, and other natural resources, and would become specific Conditions of Approval (COA) by the City of Encinitas:

1. The project would install low flow water fixtures in all residential units.
2. All lighting within the project will be designed using LED technology for both indoor and outdoor areas.
3. The project would provide separate waste containers to allow for simpler material separations, or the project would pay for a waste collection service that recycles the materials in accordance with AB 341 to achieve a 75% waste diversion. 100% of all green waste will be diverted from landfills and recycled as mulch and used onsite. For purposes of this analysis only a 50% reduction in GHG emissions was assumed. 100% of all green waste will be diverted from landfills and recycled as mulch and used onsite.
4. The project would not install hearth options in residential units.
5. The project would be required to utilize Tier 4 construction Equipment with Diesel Particulate Filters (DPF) attached or equivalent.
6. The project would install 434 kilowatts (KW) of solar.
7. The project would provide circuit and capacity in all 250 residential garages for use by electric vehicles, and would install 13 Electric Vehicle (EV) Charging Stations in surface parking areas throughout the project site.
8. The project would install high-efficiency water heaters or solar water heater systems.
9. The project would comply with ENERGYSTAR appliance requirements, and would meet ENERGYSTAR for Homes.
10. The project would install water efficient/drought tolerant and/or native landscape, use smart evapotranspiration controllers, would use reclaimed water on non-agricultural project landscaping areas and would limit conventional turf.
11. The project would install high-efficiency HVAC systems areas.
12. The project has been designed such that most buildings are oriented in a north/south direction.
13. The project includes a mix of uses, including an on-site restaurant, on-site recreation areas (community recreation center, trail system, linear park) and is within walking distance of off-site retail and commercial centers areas.
14. The project would improve duct insulation 15% over 2013 Title 24.
15. The project would comply with CALGreen Tier II standards.
16. The project would install a storm water reuse system on-site to collect, filter and re-use captured stormwater in landscaped areas.
17. The project would provide residential development within walking and biking distance of local retail.

PDFs 1-7 above have been quantified in this analysis, while PDFs 8-17 are not specifically analyzed quantitatively in this analysis. As a result, the proposed project air quality (and GHG) emissions are "worst case." Many of the measures listed above are outlined in the City's 2019 Housing Element Update Environmental Assessment measure GHG-3, Table A as recommended measures. The project would also implement a Transportation Demand Management (TDM) program to reduce automobile trips, both internal and external to the community (refer to the project's traffic mitigation measures in the Environmental Impact Report). Conservatively, this analysis has not taken any reductions for those TDM measures.

Figure 1-A: Project Vicinity Map



Source: (Google, 2020)

Figure 1-B: Proposed Project Site Plan



Source: (Nolen Communities, 2020)

2.0 EXISTING ENVIRONMENTAL SETTING

2.1 Existing Setting

The project site lies in the western portion of San Diego County, in the City of Encinitas. The existing site is occupied by private commercial development with a flower-growing operation (Dramm & Echter), and consists of multiple greenhouse and support buildings as well as a single family home. The existing site is designated SP-3 (Encinitas Ranch Specific Plan) with an R-30 overlay per the City's Housing Element Update (City of Encinitas, 2019). The site is zoned ER-R-30 on approximately 14.2 acres and Agriculture on approximately 5.5 acres, (1.8 acres are within public rights of way for Leucadia Boulevard and Quail Gardens Drive) and allows for the construction of up to 295 homes.[1] Site topography onsite is generally flat with elevations at or around 325 feet above mean sea level (AMSL).

2.2 Climate (Encinitas)

Climate within the San Diego Air Basin (SDAB) area varies dramatically over short geographical distances due to size and topography. Most of southern California is dominated by high-pressure systems for much of the year, which keeps the high desert mostly sunny and warm. Typically, during the winter months, the high pressure system drops to the south and brings cooler, moister weather from the north. Prevailing winds are generally westerly flowing towards the east for most of the year; however, during the autumn and winter, it is common for strong warm dry winds originating in the desert having a more easterly flow characteristic.

Meteorological trends within the City of Encinitas are typically cooler given the close vicinity to the ocean. Median temperatures range from approximately 55ºF in the winter to approximately 72ºF in the summer (City-Data, 2020)

2.3 Regulatory Standards

2.3.1 Federal Standards and Definitions

The Federal Air Quality Standards were developed per the requirements of The Federal Clean Air Act, which is a federal law that was passed in 1970 and further amended in 1990. This law provides the basis for the national air pollution control effort. An important element of the act included the development of national ambient air quality standards (NAAQS) for major air pollutants.

[1] While the 2019 Housing Element Update anticipated between 246 and 295 units on the project site, under the Encinitas Ranch Specific Plan, 14.2 acres are zoned R-30, which would allow for 426 dwelling units prior to any application of State Density Bonus, which could increase the maximum density by 35% for a total of 575 units.

The Clean Air Act established two types of air quality standards otherwise known as primary and secondary standards. ***Primary Standards*** set limits for the intention of protecting public health, which includes sensitive populations such as asthmatics, children and elderly. ***Secondary Standards*** set limits to protect public welfare to include the protection against decreased visibility, damage to animals, crops, vegetation and buildings.

The EPA Office of Air Quality Planning and Standards (OAQPS) has set NAAQS for principal pollutants, which are called "criteria" pollutants. These pollutants are defined below:

1. ***Carbon Monoxide (CO):*** *is a colorless, odorless, and tasteless gas and is produced from the partial combustion of carbon-containing compounds, notably in internal-combustion engines. Carbon monoxide usually forms when there is a reduced availability of oxygen present during the combustion process. Exposure to CO near the levels of the ambient air quality standards can lead to fatigue, headaches, confusion, and dizziness. CO interferes with the blood's ability to carry oxygen.*
2. ***Lead (Pb):*** *is a potent neurotoxin that accumulates in soft tissues and bone over time. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Because lead is only slowly excreted, exposures to small amounts of lead from a variety of sources can accumulate to harmful levels. Effects from inhalation of lead near the level of the ambient air quality standard include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms can include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children.*
3. ***Nitrogen Dioxide (NO_2):*** *is a reactive, oxidizing gas capable of damaging cells lining the respiratory tract and is one of the nitrogen oxides emitted from high-temperature combustion, such as those occurring in trucks, cars, power plants, home heaters, and gas stoves. In the presence of other air contaminants, NO_2 is usually visible as a reddish-brown air layer over urban areas. NO_2 along with other traffic-related pollutants is associated with respiratory symptoms, respiratory illness and respiratory impairment. Studies in animals have reported biochemical, structural, and cellular changes in the lung when exposed to NO_2 above the level of the current state air quality standard. Clinical studies of human subjects suggest that NO_2 exposure to levels near the current standard may worsen the effect of allergens in allergic asthmatics, especially in children.*
4. ***Particulate Matter (PM_{10} or $PM_{2.5}$):*** *is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary in shape, size and chemical composition, and can be made up of multiple materials such as metal, soot, soil, and dust. PM_{10} particles are 10 microns (µm) or less and $PM_{2.5}$ particles are 2.5 (µm) or less. These particles can contribute significantly to regional haze and reduction of visibility in California. Exposure to PM levels exceeding current air quality standards increases the risk of allergies such as asthma and respiratory illness.*
5. ***Ozone (O_3)****: is a highly oxidative unstable gas capable of damaging the linings of the respiratory tract. This pollutant forms in the atmosphere through reactions between chemicals directly emitted from vehicles, industrial plants, and many other sources. Exposure to ozone above ambient air quality standards can lead to human health effects such as lung inflammation, tissue damage and impaired lung functioning. Ozone can also damage materials such as rubber, fabrics and plastics.*
6. ***Sulfur Dioxide (SO_2)****: is a gaseous compound of sulfur and oxygen and is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives, ships, and off-road*

diesel equipment. SO_2 is also emitted from several industrial processes, such as petroleum refining and metal processing. Effects from SO_2 exposures at levels near the one-hour standard include bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, especially during exercise or physical activity. Children, the elderly, and people with asthma, cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most susceptible to these symptoms. Continued exposure at elevated levels of SO_2 results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality.

2.3.2 State Standards and Definitions

CARB sets the laws and regulations for air quality on the state level. The California Ambient Air Quality Standards (CAAQS) is similar to the NAAQS and also restricts four additional contaminants. Table 2.1 on the following page identifies both the NAAQS and CAAQS. The additional contaminants as regulated by the CAAQS are defined below:

1. ***Visibility Reducing Particles**: Particles in the Air that obstruct the visibility.*
2. ***Sulfates**: are salts of Sulfuric Acid. Sulfates occur as microscopic particles (aerosols) resulting from fossil fuel and biomass combustion. They increase the acidity of the atmosphere and form acid rain.*
3. ***Hydrogen Sulfide (H_2S)**: is a colorless, toxic and flammable gas with a recognizable smell of rotten eggs or flatulence. H_2S occurs naturally in crude petroleum, natural gas, volcanic gases, and hot springs. Usually, H_2S is formed from bacterial breakdown of organic matter. Exposure to low concentrations of hydrogen sulfide may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Brief exposures to high concentrations of hydrogen sulfide (greater than 500 Parts per Million (ppm)) can cause a loss of consciousness and possibly death.*
4. ***Vinyl Chloride**: also known as chloroethene and is a toxic, carcinogenic, colorless gas with a sweet odor. It is an industrial chemical mainly used to produce its polymer, polyvinyl chloride (PVC).*

Table 2.1: Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	**Average Time**	**California Standards[1]**		**Federal Standards[2]**		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m3)	Ultraviolet Photometry	-	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m3)		0.070 ppm (137 µg/m3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m3	Gravimetric or Beta Attenuation	150 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m3		-		
Fine Particulate Matter (PM2.5)[9]	24 Hour	No Separate State Standard		35 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m3	Gravimetric or Beta Attenuation	12.0 µg/m3	15 µg/m3	
Carbon Monoxide (CO)	8 hour	9.0 ppm (10mg/m3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m3)	-	Non-Dispersive Infrared Photometry
	1 hour	20 ppm (23 mg/m3)		35 ppm (40 mg/m3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m3)		-	-	-
Nitrogen Dioxide (NO_2)[10]	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m3)[8]	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m3)		0.100 ppm[8] (188/ µg/m3)	-	
Sulfur Dioxide (SO_2)[11]	Annual Arithmetic Mean	-	Ultraviolet Fluorescence	0.030 ppm[10] (for Certain Areas)	-	Ultraviolet Flourescence; Spectrophotometry (Pararoosaniline Method)[9]
	24 Hour	0.04 ppm (105 µg/m3)		0.14 ppm[10] (for Certain Areas) (See Footnote 9)	-	
	3 Hour	-		-	0.5 ppm (1300 µg/m3)	
	1 Hour	0.25 ppm (655 µg/m3)		75 ppb (196 µg/m3)	-	
Lead[12,13]	30 Day Average	1.5 µg/m3	Atomic Absorption	-		-
	Calendar Quarter	-		1.5 µg/m3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	-		0.15 µg/m3		
Visibility Reducing Particles	8 Hour	See footnote 14				
Sulfates	24 Hour	25 µg/m3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m3)	Gas Chromatography			

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m3 to 12.0 µg/m3. The existing national 24- hour PM2.5 standards (primary and secondary) were retained at 35 µg/m3, as was the annual secondary standard of 15 µg/m3. The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: (California Air Resources Board, 5/4/2016)

2.3.3 Regional Standards

The State of California has 35 specific air districts, which are each responsible for ensuring that the criteria pollutants are below the NAAQS and CAAQS. Air basins that exceed either the NAAQS or the CAAQS for any criteria pollutants are designated as "non-attainment areas" for that pollutant. Currently, there are 15 non-attainment areas for the federal ozone standard and two non-attainment areas for the $PM_{2.5}$ standard and many areas are in non-attainment for PM_{10} as well. California therefore created the California State Implementation Plan (SIP), which is designed to provide control measures needed to attain ambient air quality standards.

The San Diego Air Pollution Control District (SDAPCD) is the government agency which regulates sources of air pollution within the County. Therefore, the SDAPCD developed a Regional Air Quality Strategy (RAQS) to provide control measures to try to achieve attainment status for state ozone standards with control measures focused on Volatile Organic Compounds (VOCs) and oxides of nitrogen (NO_X). Currently, San Diego is in "non-attainment" status for federal and state O_3 and state PM_{10} and $PM_{2.5.}$ An attainment plan is available for O_3. The RAQS was adopted in 1992 and has been updated as recently as 2016 which was the latest update incorporating minor changes to the prior 2009 update.

The 2016 update mostly summarizes how the 2009 update has lowered NO_X and VOCs emissions which reduces ozone and clarifies and enhances emission reductions by introducing for discussion three new VOC and four new NO_X reduction measures. NO_X and VOCs are precursors to the formation of ozone in the atmosphere. The criteria pollutant standards are generally attained when each monitor within the region has had no exceedances during the previous three calendar years. A complete listing of the current attainment status for criteria pollutants with respect to both federal and state nonattainment status by pollutants for County is shown in Table 2.2 (SDAPCD, 2019).

The RAQS is largely based on population predictions by the San Diego Association of Governments (SANDAG). Projects that produce less growth than predicted by SANDAG would generally conform to the RAQS. Projects that create more growth than projected by SANDAG may create a significant impact if the project produces unmitigable air quality emissions or if the project produces cumulative impacts.

Table 2.2: San Diego Air Basin Attainment Status by Pollutant

Criteria Pollutant	Federal Designation	State Designation
Ozone (8-Hour)	Nonattainment	Nonattainment
Ozone (1-Hour)	Attainment *	Nonattainment
Carbon Monoxide	Attainment	Attainment
PM10	Unclassifiable **	Nonattainment
PM2.5	Attainment	Nonattainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	No Federal Standard	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Visibility	No Federal Standard	Unclassified

** The federal 1-hour standard of 12 pphm was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in State Implementation Plans.*
*** At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.*
(SDAPCD, 2019)

2.4 SDAPCD Rule 20.2 – Air Quality Impact Assessment Screening Thresholds

The SDAPCD has established threshold in Rule 20.2 for the preparation of Air Quality Impact Assessments (AQIA). These screening criteria can be used to demonstrate that a Project's total emissions would not result in a significant impact as defined by CEQA. Since SDAPCD does not have AQIA threshold for emissions of Volatile Organic Compounds (VOCs), the use of the threshold for VOCs is from the South Coast Air Quality Management District for the Coachella Valley. Should emissions be found to exceed these thresholds, additional modeling is required to demonstrate that the Project's total air quality impacts are below the state and federal ambient air quality standards. These screening thresholds for construction and daily operations are shown in Table 2.3.

Non Criteria pollutants such as Hazardous Air Pollutants (HAPs) or Toxic Air Contaminants (TACs) are also regulated by the SDAPCD. Rule 1200 (Toxic Air Contaminants - New Source Review) adopted on June 12, 1996, requires evaluation of potential health risks for any new, relocated, or modified emission unit which may increase emissions of one or more toxic air contaminants. The rule requires that projects that propose to increase cancer risk between 1 and 10 in one million need to implement toxics best available control technology (T-BACT) or impose the most effective emission limitation, emission control device or control technique to reduce the cancer risk. At no time shall the project increase the cancer risk to over 10 in one million.

Table 2.3: Screening Threshold for Criteria Pollutants

Pollutant	Total Emissions (Pounds per Day)	Total Emissions (Tons per Year)
Construction Emissions		
Respirable Particulate Matter (PM_{10} and $PM_{2.5}$)	100 and 55	15
Nitrogen Oxide (NO_x)	250	40
Sulfur Oxide (SO_x)	250	40
Carbon Monoxide (CO)	550	100
Volatile Organic Compounds (VOCs)	75	40
Reactive Organic Gases (ROG) SCAQMD	75	40
Operational Emissions		
Respirable Particulate Matter (PM_{10} and $PM_{2.5}$)	100 and 55	15
Nitrogen Oxide (NO_x)	250	40
Sulfur Oxide (SO_x)	250	40
Carbon Monoxide (CO)	550	100
Lead and Lead Compounds	3.2	0.6
Volatile Organic Compounds (VOCs)	75	40
Reactive Organic Gases (ROG) SCAQMD	75	40

Projects creating cancer risks less than one in one million are not required to implement T-BACT technology. This report assumes that Volatile Organic Compounds (VOC) and Reactive Organic Gases (ROG) are essentially the same due to the fact that emissions generated from the Project represent non-methane organic compounds.

2.5 SDAPCD Rule 51 – Odor Impacts

The State of California Health and Safety Code, Division 26, Part 4, Chapter 3, Section 41700 SDAPCD Rule 51, and the City's Municipal Code prohibit emissions from any source whatsoever in such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to the public health or damage to property. Projects required to obtain permits from SDAPCD are evaluated by SDAPCD staff for potential odor nuisance, and conditions may be applied (or control equipment required) where necessary to prevent occurrence of public nuisance.

SDAPCD Rule 51 (Public Nuisance) also prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors. Odor issues are very subjective by the nature of odors themselves and due to the fact that their measurements are difficult to quantify. As a result, this guideline is qualitative, and will focus on the existing and potential surrounding uses and location of sensitive receptors.

2.6 Local Air Quality

Criteria pollutants are measured continuously throughout the San Diego Air Basin. This data is used to track ambient air quality patterns throughout the County. As mentioned earlier, this data is also used to determine attainment status when compared to the NAAQS and CAAQS.

The SDAPCD is responsible for monitoring and reporting monitoring data. The District operates 10 monitoring sites, which collect data on criteria pollutants. Four additional sites collect meteorological data, which is used by the District to assist with pollutant forecasting, data analysis and characterization of pollutant transport.

SDAPCD published the five year air quality summary for all of the monitoring stations within the San Diego basin (SDAPCD, 2020). The proposed development project is closest to the Camp Pendleton monitoring station however, the closest site with CO data is the Escondido Monitoring station in 2015. Table 2.4 on the following page identifies the criteria pollutants monitored at the aforementioned station.

Table 2.4: Three-Year Ambient Air Quality Summary near the Project Site

Pollutant	Closest Recorded Ambient Monitoring Site	Averaging Time	CAAQS	NAAQS	2015	2016	2017	2018
O^3 (ppm)	Camp Pendleton or Escondido Monitoring Station	1 Hour	0.09 ppm	No Standard	0.09	0.08	0.09	0.08
		8 Hour	0.070 ppm	0.070 ppm	0.08	0.07	0.08	0.07
* PM_{10} (µg/m3)		24 Hour	50 µg/m3	150 µg/m3	30	-	-	N/A
		Annual Arithmetic Mean	20 µg/m3	No Standard	19.4	-	-	N/A
* $PM_{2.5}$ ($\mu g/m^3$)		24 Hour	No Standard -	35 µg/m3	29.4	-	-	N/A
		Annual Arithmetic Mean	12 µg/m3	15 µg/m3	8.6	-	-	N/A
NO_2 (ppm)		Annual Arithmetic Mean	0.030 ppm	0.053 ppm	0.006	0.006	0.006	0.005
		1 Hour	0.18 ppm	0.100 ppm	0.060	0.072	0.063	0.048
* CO (ppm)		1 Hour	20 ppm	35 ppm	3.1	-	-	N/A
		8 Hour	9 ppm	9 ppm	2.0	-	-	N/A

Notes:
- Days exceeded marked with indicate no data available
* Data was selected from the Escondido Location

2.7 Health Impacts from Agriculture Operations

Agricultural operations could require the application of synthetic chemicals such as fertilizers, pesticides, and herbicides. The application of pesticides is regulated by Title 3, Division 6, of the California Code of Regulations (CCR). The CCR has specified guidelines governing application of individual pesticides (4 CCR 6445 et seq.). Synthetic chemicals can only be applied during periods of calm weather conditions. The code also prohibits the application of synthetic chemicals when there is a reasonable possibility of contamination of persons not involved in the application process. The proposed project would also be required to comply with recent amendments to Title 3, Division 6, of the CCR adopted by the California Department of Pesticide Regulation (DPR) in effect as of January 1, 2018.

2.8 Project Specific California Environmental Quality Act (CEQA) Requirements

The California Environmental Quality Act has provided a checklist to identify the significance of air quality impacts. These guidelines are found in Appendix G of the CEQA guidelines and are as follows:

AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:

A: Conflict with or obstruct implementation of the RAQS or applicable portions of the State SIP?

B: Result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?

C: Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or State ambient air quality standard (PM10, PM2.5 or exceed quantitative thresholds for O3 precursors, oxides of nitrogen [NOX] and Volatile Organic Compounds [VOCs])?

D: Expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations?

E: Create objectionable odors affecting a substantial number of people?

3.0 METHODOLOGY

3.1 Construction Emissions Calculations

Criteria Air Pollutants

Air Quality impacts related to construction and daily operations were calculated using the latest CalEEMod 2016.3.2 air quality model, which was developed by BREEZE Software for the South Coast Air Quality Management District (SCAQMD) in 2017. CalEEMod is the state-wide accepted modeling software for preparing such air quality analysis throughout California and is sensitive to project-specific input including project location, construction schedule, and proposed uses. When project-specific information is not available or known, CalEEMod includes built in default values which are industry-accepted standards to appropriately model and estimate emissions. The construction module in CalEEMod is used to calculate the emissions associated with the construction of the proposed Project and uses methodologies presented in the US EPA AP-42 document with emphasis on Chapter 11.9. The CalEEMod input/output model is shown in ***Attachment A*** to this report.

Construction Health Risk

The worst-case exhaust emissions generated from the proposed project from construction equipment were utilized and calculated within the CalEEMod model. The AERSCREEN dispersion model was then used to determine the concentration for air pollutants at any location near a pollutant generator. Additionally, the model predicts the maximum exposure distance and concentrations. The AERSCREEN input/output file for the proposed project is shown in ***Attachment B*** at the end of this report. Once the dispersed concentrations of diesel particulates are estimated in the surrounding air, they are used to evaluate estimated exposure to people. Exposure is evaluated by calculating the dose in milligrams per kilogram body weight per day (mg/kg/d). For residential exposure, the breathing rates are determined for specific age groups, so inhalation dose (Dose-air) is calculated for each of these age groups, 3rd trimester, 0<2, 2<9, 2<16, 16<30 and 16-70 years. The following algorithms calculate this dose for exposure through the inhalation pathways. The worst case cancer risk dose calculation is defined in Equation 1 below (OEHHA, 2015).

Equation 1 $$Dose_{air} = C_{air} * (BR/BW) * A * EF * (1x10^{-6})$$

$Dose_{air}$	=	Dose through inhalation (mg/kg/d)
C_{air}	=	Concentration in air (µg/m^3) Annual average DPM concentration in µg/m^3 - SCREEN3 predicts a 1-hr concentration and is corrected to an annual average by multiplying the 1-hr average by 0.08 (US EPA, 1992)
BR/BW	=	Daily breathing rate normalized to body weight (L/kg BW-day). See Table I.2 for the daily breathing rate for each age range.

A	=	Inhalation absorption factor (assumed to be 1)
EF	=	Exposure frequency (unitless, days/365 days)
$1x10^{-6}$	=	Milligrams to micrograms conversion (10^{-3} mg/ µg), cubic meters to liters conversion (10^{-3} m^3/l)

Cancer Risk

Cancer risk is calculated by multiplying the daily inhalation or oral dose, by a cancer potency factor, the age sensitivity factor, the frequency of time spent at home and the exposure duration divided by averaging time, to yield the excess cancer risk. As described below, the excess cancer risk is calculated separately for each age grouping and then summed to yield cancer risk for any given location. Specific factors as modeled are shown within the project models which is provided as ***Attachment C*** to this report. The worst case cancer risk calculation is defined in Equation 2 below (OEHHA, 2015).

Equation 2

$$RISK_{inh\text{-}res} = DOSE_{air} \times CPF \times ASF \times ED/AT \times FAH$$

$RISK_{inh\text{-}res}$	=	Residential inhalation cancer risk
$DOSE_{air}$	=	Daily inhalation dose (mg/kg-day)
CPF	=	Inhalation cancer potency factor ($mg/kg\text{-}day^{-1}$)
ASF	=	Age sensitivity factor for a specified age group (unitless)
ED	=	Exposure duration (in years) for a specified age group
AT	=	Averaging time for lifetime cancer risk (years)
FAH	=	Fraction of time spent at home (unitless)

Office of Environmental Health Hazard Assessment (OEHHA) recommends that an exposure duration (residency time) of 30 years be used to estimate individual cancer risk for the Maximally Exposed Individual Resident (MEIR). OEHHA also recommends that the 30-year exposure duration be used as the basis for public notification and risk reduction audits and plans.

Exposure durations of 9-years and 70-years are also recommended to be evaluated for the MEIR to show the range of cancer risk based on residency periods. If a facility is notifying the public regarding cancer risk, the 9-and 70-year cancer risk estimates are useful for people who have resided in their current residence for periods shorter and longer than 30 years.

Non-Cancer Risk

Non-Cancer risks or risks defined as chronic or acute are also known with respect to DPM and are determined by the hazard index. To calculate hazard index, DPM concentration is divided by its chronic Reference Exposure Levels (REL). Where the total equals or exceeds one, a health hazard is presumed to exist. RELs are published by the Office of Environmental Health

Hazard Assessment (OEHHA, 2015). Diesel Exhaust has a REL of 5 µg/m^3 and targets the respiratory system.

3.2 Construction Assumptions

Project construction dates were estimated based on a construction start date in 2021 with construction ending in 2023. CalEEMod was utilized for all construction calculations and has been manually updated to reflect SDAPCD Rule 67 VOC paint standards and PDFs identified in Section 1.3. Table 3.1 shows the expected timeframes for the construction of project infrastructure, facilities, and improvements, as well as the expected number of pieces of equipment. Also, it should be noted that this would be conservative in the event construction began/ended at a later date, as annual code updates and fleet improvements typically have the effect of restricting and limiting emissions on construction equipment over time.

Table 3.1: Expected Construction Equipment

Equipment Identification	Proposed Start	Proposed Complete	Quantity
Demolition	06/01/2021	06/30/2021	
Concrete/Industrial Saws			1
Excavators			3
Rubber Tired Dozers			2
Site Preparation	07/01/2021	07/21/2021	
Rubber Tired Dozers			3
Tractors/Loaders/Backhoes			4
Grading	07/22/2021	09/30/2021	
Excavators			2
Graders			1
Rubber Tired Dozers			1
Scrapers			2
Tractors/Loaders/Backhoes			2
Paving	09/01/2021	09/28/2021	
Pavers			2
Paving Equipment			2
Rollers			2
Building Construction	10/01/2021	01/20/2023	
Cranes			1
Forklifts			3
Generator Sets			1
Tractors/Loaders/Backhoes			3
Welders			1
Architectural Coating	10/01/2022	01/13/2023	
Air Compressors			1

This equipment list is based upon equipment inventory within CalEEMod. The quantity and types are based upon assumptions provided by the project applicant.

3.3 Operational Emissions Assumptions and Methodology

Once construction is completed, the proposed project would generate emissions from daily operations which would include sources such as Area, Energy, Mobile, Waste and Water uses, which are also calculated within CalEEMod. Area Sources include consumer products, landscaping and architectural coatings as part of regular maintenance. Energy sources would be from uses such as onsite natural gas use. Finally, mobile or transportation related emissions are calculated in CalEEMod. The operational model is also provided in ***Attachment A***.

The traffic inputs for CalEEMod were adjusted to be consistent with the proposed project traffic study. Based on that study, the proposed project would generate 1,690 net average daily trips compared to existing traffic from the Dramm & Echter flower operation (Chen Ryan, 2020). These traffic numbers were utilized within the CalEEMod analysis. The model also estimates emission predictions for ROG, NOx, CO, SO_2, PM_{10} and $PM_{2.5}$ for area source assumptions. Additionally, it was assumed that an average of 10% of the structural surface area will be re-painted each year. Finally, since the proposed project would not be installing hearth options, CalEEMod default hearth settings were modified to represent no hearth options.

Consumer product emissions are generated by a wide range of product categories, including air fresheners, automotive products, household cleaners, and personal care products. Emissions associated with these products primarily depend on the increased population associated with residential development. Default emission factors were utilized within CalEEMod.

3.4 Micro Scale Operational Emissions

Air pollutant emissions related to project-generated traffic have the potential to create new, or worsen existing, localized air quality violations with respect to carbon monoxide (CO). These increased carbon monoxide "Hot Spots" are determined through the utilization of the Institute of Transportation Studies (ITS) Transportation Project-Level Carbon Monoxide Protocol (University of California, Davis, 1997).

In the event project traffic adds vehicular trips to an intersection that operates at Level of Service (LOS) E or F, or the addition of project trips re-classify an intersection from an acceptable LOS to LOS E or F, and when total intersection peak-hour trips exceed 3,000 vehicles, it is recommended that projects within the County of San Diego conduct a CO "Hot Spot" analysis (County of San Diego, 2007). The City of Encinitas also suggests using the County's screening thresholds to conduct CO hot spot analyses.

The ITS Transportation Project-Level Carbon Monoxide Protocol recommends running the EMFAC model to determine emission rates for the Project year as well as conduct dispersion modeling utilizing CALINE to determine worst-case emission concentrations. The EMFAC model is provided as ***Attachment D***.

The proposed project traffic study reported that the proposed project, combined with existing traffic, would add trips to two intersections currently experiencing LOS of E or worse: (1) Garden View Road/Leucadia Boulevard and (2) El Camino Real/Leucadia Boulevard. Both intersections have more than 3,000 vehicles per hour. These intersections as identified within the proposed project traffic study are shown in Table 3.2 (Chen Ryan, 2020). It should be noted that the proposed project traffic study indicated that the proposed project's direct impacts combined with cumulative impacts, would not increase the delay to a level considered significant (Chen Ryan, 2020). Also, it should be noted that the project's Sidonia Secondary Access Option (which only changes driveway access) would generate the same amount of vehicles at both of these intersections as the proposed project.

Table 3.2: Intersections LOS E or Worse and Delay

Intersection	Peak Hour	Number of peak-hour Vehicles	LOS
Garden View Road/ Leucadia Boulevard	AM	3,243	E
	PM	3,562	F
El Camino Real/Leucadia Boulevard	AM	5,838	F
	PM	6,368	F

Micro-Scale operations during these conditions show that the proposed project would add trips to these intersections and would have a potential to generate CO emissions in excess of the CAAQS. For purposes of this analysis, the CAAQS would be considered the most stringent air quality standard with CO limits of 9 parts per million (PPM) for the one-hour standard and 20 PPM CO for the 8-hour standard and are used within this analysis. Additionally, the CALINE model incorporated the highest 8-hour and 1-hour air quality data as collected at the Escondido monitoring station, which in 2014 was 3.1 PPM and 3.8 PPM, respectively. The CALINE model are shown in ***Attachment E*** to this report.

3.5 Odor Impacts

The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although

offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

3.6 Health Impacts from Agriculture Operations

San Diego County is the entity responsible for enforcing and monitoring pesticide application. Farms are required to register the type and amount of pesticides they use for their crops with the County's Agricultural Commissioner's Office. Normal use could result in some off-site movement, which occurs with every application; however, the application of synthetic chemicals are regulated to minimize spray drift affecting nearby residents and/or employees within the project area.

The existing operations (as well as proposed future operations) are required to operate in accordance with Title 3, Division 6, of the CCRs as identified in Section 2.7 of this report.

Source: (Nolen Communities, 2020)

4.0 FINDINGS

4.1 Consistency with RAQS and SIP

As mentioned in Section 2.3.3 of this analysis, the RAQS is based on population predictions from SANDAG. Projects that produce growth in accordance with SANDAG's projections would generally conform to the RAQS. Since the proposed project is compatible with the general plan land use designation, the construction emissions would not conflict with the RAQS.

The RAQS is updated regularly with the last update being completed in 2016. The City has recently updated the Housing Element to the General Plan and has updated SANDAG with new employment and residential growth projections which have been adopted by the City. Given this, the project has been designed to conform to the Housing Element and would also conform with the RAQS. As such, the project would create a less than significant impact to the RAQS.

4.2 Construction Findings

Construction emissions in pounds per day from the construction activities and equipment identified in Section 3.2 above is shown in Table 4.1 below. Based on these numbers, the proposed project would not exceed City standards, and would not require mitigation. It should be noted that, as a design feature, the proposed project construction team will utilize Tier 4 diesel construction equipment with DPF, and architectural coatings would conform to SDAPCD Rule 67 as indicated by the applicant.

Table 4.1: Expected Construction Emissions Summary

Year	ROG	NO_x	CO	SO_2	PM_{10} (Dust)	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Dust)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)
2021	1.49	14.13	52.44	0.10	18.21	0.05	18.22	9.97	0.05	9.98
2022	43.66	6.53	26.39	0.06	2.31	0.03	2.34	0.62	0.03	0.65
2023	43.59	5.71	25.88	0.06	2.31	0.02	2.33	0.62	0.02	0.64
Maximum	*43.66*	*14.13*	*52.44*	*0.10*	*18.21*	*0.05*	*18.22*	*9.97*	*0.05*	*9.98*
Significance Threshold (lb/day)	**75**	**250**	**550**	**250**	**-**	**-**	**100**	**-**	**-**	**55**
SDAPCD Impact?	**No**	**No**	**No**	**No**	-	-	**No**	-	-	**No**

Given these findings, project emissions would not exceed SDAPCD air quality standards during construction and impacts would be less than significant. No mitigation measures will be necessary.

4.3 Health Risk

Based upon the air quality modeling and assuming Tier 4 equipment with DPF as a design feature to the proposed project, worst-case onsite PM_{10} from onsite construction exhaust would cumulatively produce 0.0017 tons over the construction duration (429 working days) or an average of 0.000123 grams/second. The average emission rate over the grading area is $1.43x10^{-9}$ g/m2/s, which was calculated as follows:

$$\frac{0.000123\,\frac{grams}{sec\,o\,nd}}{21.48acres * 4{,}046\,\frac{meters^2}{acre}} = 1.43 * 10^{-9}\,\frac{\frac{grams}{meters^2}}{sec\,o\,nd}$$

Utilizing the AERSCREEN dispersion model, the peak maximum 1-hr concentration is 0.0852 µg/m^3 during the worst-case construction period. Converting the peak 1-hr concentration to an annual concentration by multiplying it by 0.08 (US EPA, 1992) yields an annual concentration of 0.0068 µg/m^3. Therefore, utilizing the risk equation identified above in Section 3.1, the inhalation cancer risk is 1.42 per million exposed at the point of maximum exposure 208 meters away (682 feet) as predicted by AERSCREEN and shown in the model outputs **(Attachment B)**. It should be again noted that a PDF would be to utilize Tier 4 diesel equipment with DPF attached inline to the exhaust system and would be a condition to the proposed project and is considered T-BACT. Since the threshold is 10 per million exposed with T-BACT installed, the project would have a less than significant impact under CEQA and would be in compliance with the City's thresholds.

It should be noted that sensitive residential receptors are adjacent to the project site, as well as Capri elementary school which is over 900 meters (2,953 feet) from the project site. Since the maximum risk is 1.42 per million exposed (and the threshold is 10 per million), all sensitive receptors would have cancer risks at or less than 1.42 per million exposed which would also represent a less than significant impact.

There are known acute and chronic health risks associated with diesel exhaust which are considered non-cancer risks. These risks are calculated based on methods identified in Section 3.1 of this report. From this we find that the hourly concentration of 0.085 µg/m^3 divided by the REL of 5 µg/m^3 yields a Health Hazard Index of 0.017, which is less than one. Therefore, based on thresholds for non-cancer risks in Section 3.1 above, non-cancer health risks are considered less than significant.

Furthermore, based on the project traffic study, the two nearest cumulative projects with respect to the Fox Point Farms project are the Sanderling Waldorf School and the Ocean View Development. The Sanderling Waldorf School project is located roughly 1,500 meters (4,900 feet) south of the proposed project and the Ocean View development is located even further to the south. Additionally, both projects are notably smaller than Fox Point Farms. Since the project health risk screening model predicted that diesel exhaust during construction would produce the highest concentrations roughly 208 meters (682 feet) from the project centroid and would generate a cancer risk of 1.42 per one million exposed, cumulative contributions from these other projects would not be large enough or have a construction intensity to cause this risk to exceed 10 per one million exposed. Also, since construction emissions identified in Table 4.1 above are low relative to standards, simultaneous construction of all three projects would cause a less than significant cumulative air quality impact.

4.4 Operational Findings

The proposed project would generate 1,690 net new daily trips once the proposed project is fully operational in the year 2024 (Chen Ryan, 2020). This assumption has been incorporated into the CalEEMod file. Also, as noted in Section 1.3 above, PDFs would be included and have been assumed within this analysis. The expected daily pollutant generation can be calculated utilizing the product of the average daily miles within the City and the expected emissions inventory. The daily pollutant emissions as calculated within CalEEMod are shown in Table 4.2 below and are well below the SDAPCD thresholds for all categories. Based on this analysis, the proposed project would generate a less than significant direct operational impact.

Table 4.2: Expected Daily Pollutant Generation

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Summer Scenario						
Area	6.94	0.24	20.63	0.00	0.11	0.11
Energy	0.08	0.73	0.38	0.00	0.06	0.06
Mobile	2.11	7.56	21.14	0.08	6.87	1.87
Total (Lb/Day)	**9.13**	**8.53**	**42.15**	**0.08**	**7.04**	**2.05**
SDAPCD Thresholds	75	250	550	250	100	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Winter Scenario						
Area	6.94	0.24	20.63	0.00	0.11	0.11
Energy	0.08	0.73	0.38	0.00	0.06	0.06
Mobile	2.03	7.72	21.17	0.07	6.87	1.87
Total (Lb/Day)	**9.06**	**8.68**	**42.18**	**0.08**	**7.04**	**2.05**
SDAPCD Thresholds	75	250	550	250	100	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

4.5 Micro-Scale Operational Findings

The proposed project traffic impact study reported that the proposed project would add project related traffic to two intersections operating at LOS E or worse which have more than 3,000 peak hour vehicles during cumulative buildout of the area. Based on review of the data in Table 3.2 above, the worst-case intersection or the intersection having the most vehicles (El Camino Real & Leucadia Boulevard) is expected to operation with over 6,000 vehicles during the PM peak-hour.

The CALINE4 model was set up to show a typical intersection with a North, East, South and West segment extending a typical 50-meters in every direction. Peak-Hour volumes were taken from the peak-hour turning movements within the proposed project traffic impact study (Chen Ryan, 2020) for the worst-case intersection identified and CALINE4 was accordingly updated. Sensitive receptors were assumed to be roughly 25-feet to each roadway, which represents a worst-case environment. The EMFAC2017 model was run to determine the emission factors for 2024 since it is expected the proposed project would be built out by then.

Table 4.3 identifies both the 1-hour emission concentration predictions and the 8-hour average after utilizing the carbon dioxide persistence factor of 0.7. Based on model output results, the CO impacts at this intersection would be less than significant. Based on this calculation, since all other remaining intersections have lower traffic volumes, we can conclude that all other remaining intersections would also have a less than significant impact. Also, because both the proposed project and Sidonia Secondary Access Option add the same number of trips to the intersection of El Camino Real and Leucadia Boulevard, the project Option would have less than significant impacts also.

Table 4.3: Expected Carbon Monoxide Hot Spot Concentration Levels

Intersection	Vehicles Per Hour	Predicted Concentration PPM	
	PM	1 HR	8HR
El Camino Real/Leucadia Boulevard	6,368	3.4	2.4
CAAQS - Significant Thresholds?		20	9
Significant		**No**	**No**
Emission levels taken from EMFAC 2017 Traffic Volumes obtained from Project Traffic Study (Chen Ryan, 2020)			

4.6 Odors

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the proposed project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment. Such odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be less than significant.

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Agricultural operations associated with the proposed project may include various diesel-powered vehicles and equipment used on the property. These sources are mobile and transient in nature, and the distance to the closest off-site residences would provide for dilution of odor-producing constituent emissions. Such odors dissipate rapidly and are typically temporary.

Additionally, the proposed project would include composting of organic material and animal raising, which also would create odors. Any such composting and animal operations would be located within the easternmost portion of the farm use area, in the northeast of the project site. Because of the distance between these proposed uses and the nearest sensitive receptors, odors emitted from agricultural operations would be minimal. These uses are consistent with the underlying zoning for the property, as well as the provisions within the Encinitas Ranch Specific Plan. As a result, the project would not result in odor impacts from the organic farm operation.

4.7 Health Impacts from Agriculture Operations

The proposed project would reduce the area of agricultural operations by more than 50 percent and would accordingly be expected to utilize less pesticides than the current agricultural operation. Additionally, the proposed project would still be required to comply with the same CCRs. Furthermore, the proposed project would implement natural growing methods and permaculture techniques, which would avoid the likelihood of exposure to the community and surrounding area. Therefore, the proposed project would not increase pesticide use.

4.8 Conclusion of Findings

The air quality analysis has been prepared to include certain PDFs as identified in Section 1.3 of this report. Since all modeling assumes these PDFs have been included at a minimum, the PDFs identified would be required as Conditions of Approval by the City of Encinitas. Based

upon the analysis of project construction and operation activities, neither direct construction nor direct operational impacts would be expected.

The proposed project has been designed to conform to the City's Housing Element to the City's General Plan. The City has updated SANDAG with growth projections approved by the City within the Housing Element. Since the project has been designed in accordance with growth projections identified within the Housing Element, and since direct construction and operational impacts are not expected, the project would be consistent with San Diego's RAQS and would also conform to the SIP.

A localized Carbon Monoxide (CO) "Hot Spot" analysis was conducted at the identified worst-case intersection (El Camino Real/Leucadia Boulevard) identified in the project traffic study. Using the CALINE4 source modeling software, it was determined that the proposed project would generate a less than significant CO impact at this locations. Since all other intersections had fewer trips, all intersections where project trips are added can be considered less than significant as well as related to CO impacts. Finally, it should be noted that both the proposed project and the Sidonia Secondary Access Option would add the same number of vehicle trips to this intersection, and would therefore both have equal CO impacts which are less than significant.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the proposed project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment. Such odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be less than significant.

The proposed project would include composting of organic material and animal raising, which also would create odors. These uses are consistent with the underlying zoning for the property, as well as the provisions within the Encinitas Ranch Specific Plan. Any such composting and animal operations would be located within the easternmost portion of the farm, in the northeast of the project site furthest from the existing Fox Point single family homes. Because of the distance between these proposed uses and the nearest sensitive receptors, odors emitted from agricultural operations would be minimal. As a result, the project would not result in odor impacts from the organic farm operation.

The existing operations were required to operate in accordance with Title 3, Division 6, of the CCRs as identified in Section 2.7 of this report. The proposed project would reduce the agricultural operations by more than 50 percent and would accordingly utilize less pesticides though would still be required to comply with the same CCRs. Furthermore, the proposed

project would implement natural growing methods and permaculture techniques, which would avoid the likelihood of exposure to the community and surrounding area. Therefore, the proposed project would decrease pesticide use and continue to have a less than significant impact in regards to exposing sensitive receptors to synthetic chemicals from agricultural operations.

5.0 REFERENCES

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6.0 CERTIFICATIONS

The contents of this report represent an accurate depiction of the air quality environment and impacts within and surrounding the proposed development. This report was prepared utilizing the latest emission rates and reduction methodologies.

Jeremy Louden, Principal
Ldn Consulting, Inc.
jlouden@ldnconsulting.net
760-473-1253

Date August 18, 2020

ATTACHMENT A

CalEEMod 2016.3.2 Summer, Winter, Annual

Fox Point

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	156.00	Space	1.40	62,400.00	0
Quality Restaurant	3.50	1000sqft	0.48	3,500.00	0
Recreational Swimming Pool	1.80	1000sqft	0.04	1,800.00	0
Apartments Mid Rise	197.00	Dwelling Unit	13.60	197,000.00	563
Condo/Townhouse	53.00	Dwelling Unit	5.96	53,000.00	152

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	452.42	**CH4 Intensity (lb/MWhr)**	0.018	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - RPS 2024

Land Use - 21.48 acres

Construction Phase - cs

Trips and VMT -

Demolition -

Grading -

Architectural Coating - Rule 67 Paint

Vehicle Trips - Restaurant trips were modifid to reflect the total ADT of 1690 ADT per Traffic Study... VMT per trip is 6 miles based on TS.

Woodstoves - project would not install hearths

Area Coating - Rule 67 Paints

Energy Use -

Water And Wastewater - Corrected Water use per Water Study by Dexter Wilson Engineering Feb 2020-no correction taken for existing water useage 20,269,839 gallons per year. Proposed Use would 49,457,500 gallons per year or 135500 gpd * 365 d. Ratios based on CalEEMod defaults

Solid Waste -

Construction Off-road Equipment Mitigation - Tier 4 with DPF

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
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tblAreaCoating	Area_EF_Residential_Exterior	250	100
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tblWater	IndoorWaterUseRate	106,457.66	188,990.00
tblWater	OutdoorWaterUseRate	8,091,846.70	14,365,167.00
tblWater	OutdoorWaterUseRate	2,176,994.29	3,864,740.00
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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	5.8951	64.3684	47.6761	0.1026	18.2141	2.6802	20.2596	9.9699	2.4664	11.8517	0.0000	10,139.2651	10,139.2651	2.8097	0.0000	10,209.5065
2022	45.2141	21.1933	25.2769	0.0598	2.3109	0.9116	3.2225	0.6188	0.8623	1.4811	0.0000	5,893.9133	5,893.9133	0.7602	0.0000	5,912.9189
2023	44.9998	19.0346	24.6383	0.0587	2.3109	0.7876	3.0985	0.6188	0.7450	1.3638	0.0000	5,792.0804	5,792.0804	0.7437	0.0000	5,810.6717
Maximum	**45.2141**	**64.3684**	**47.6761**	**0.1026**	**18.2141**	**2.6802**	**20.2596**	**9.9699**	**2.4664**	**11.8517**	**0.0000**	**10,139.2651**	**10,139.2651**	**2.8097**	**0.0000**	**10,209.5065**

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	1.4904	14.1312	52.4392	0.1026	18.2141	0.0470	18.2245	9.9699	0.0453	9.9802	0.0000	10,139.2651	10,139.2651	2.8097	0.0000	10,209.5065
2022	43.6609	6.5326	26.3926	0.0598	2.3109	0.0276	2.3385	0.6188	0.0262	0.6450	0.0000	5,893.9133	5,893.9133	0.7602	0.0000	5,912.9189
2023	43.5930	5.7102	25.8759	0.0587	2.3109	0.0237	2.3347	0.6188	0.0225	0.6413	0.0000	5,792.0804	5,792.0804	0.7437	0.0000	5,810.6717
Maximum	**43.6609**	**14.1312**	**52.4392**	**0.1026**	**18.2141**	**0.0470**	**18.2245**	**9.9699**	**0.0453**	**9.9802**	**0.0000**	**10,139.2651**	**10,139.2651**	**2.8097**	**0.0000**	**10,209.5065**

Fox Point - San Diego 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	N20	CO2e
Percent Reduction	**7.66**	**74.78**	**-7.29**	**0.00**	**0.00**	**97.76**	**13.86**	**0.00**	**97.69**	**23.34**	**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	6.9392	0.2377	20.6331	1.0900e-003		0.1143	0.1143		0.1143	0.1143	0.0000	37.1734	37.1734	0.0357	0.0000	38.0665
Energy	0.0838	0.7259	0.3768	4.5700e-003		0.0579	0.0579		0.0579	0.0579		914.1282	914.1282	0.0175	0.0168	919.5604
Mobile	2.1086	7.5645	21.1426	0.0752	6.8145	0.0574	6.8718	1.8210	0.0534	1.8744		7,662.4833	7,662.4833	0.3846		7,672.0971
Total	**9.1316**	**8.5281**	**42.1525**	**0.0808**	**6.8145**	**0.2296**	**7.0441**	**1.8210**	**0.2256**	**2.0466**	**0.0000**	**8,613.7849**	**8,613.7849**	**0.4378**	**0.0168**	**8,629.7240**

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	6.9392	0.2377	20.6331	1.0900e-003		0.1143	0.1143		0.1143	0.1143	0.0000	37.1734	37.1734	0.0357	0.0000	38.0665
Energy	0.0838	0.7259	0.3768	4.5700e-003		0.0579	0.0579		0.0579	0.0579		914.1282	914.1282	0.0175	0.0168	919.5604
Mobile	2.1086	7.5645	21.1426	0.0752	6.8145	0.0574	6.8718	1.8210	0.0534	1.8744		7,662.4833	7,662.4833	0.3846		7,672.0971
Total	**9.1316**	**8.5281**	**42.1525**	**0.0808**	**6.8145**	**0.2296**	**7.0441**	**1.8210**	**0.2256**	**2.0466**	**0.0000**	**8,613.7849**	**8,613.7849**	**0.4378**	**0.0168**	**8,629.7240**

	ROG	NOx	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	6/1/2021	6/30/2021	5	22	
2	Site Preparation	Site Preparation	7/1/2021	7/21/2021	5	15	
3	Grading	Grading	7/22/2021	9/30/2021	5	51	
4	Paving	Paving	9/1/2021	9/28/2021	5	20	
5	Building Construction	Building Construction	10/1/2021	1/20/2023	5	341	
6	Architectural Coating	Architectural Coating	10/1/2022	1/13/2023	5	75	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 127.5

Acres of Paving: 1.4

Residential Indoor: 506,250; Residential Outdoor: 168,750; Non-Residential Indoor: 5,250; Non-Residential Outdoor: 1,750; Striped Parking Area: 3,744 (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
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
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
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	1,038.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	989.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	208.00	38.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	42.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

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					10.3406	0.0000	10.3406	1.5659	0.0000	1.5659			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**	**10.3406**	**1.5513**	**11.8919**	**1.5659**	**1.4411**	**3.0070**		**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	0.3502	12.0943	2.9588	0.0364	0.8244	0.0369	0.8613	0.2259	0.0353	0.2613		3,990.0734	3,990.0734	0.3525		3,998.8849
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	0.0519	0.0337	0.3979	1.2300e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		122.1661	122.1661	3.4900e-003		122.2533
Total	**0.4021**	**12.1280**	**3.3566**	**0.0376**	**0.9477**	**0.0378**	**0.9854**	**0.2586**	**0.0361**	**0.2947**		**4,112.2395**	**4,112.2395**	**0.3560**		**4,121.1382**

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					10.3406	0.0000	10.3406	1.5659	0.0000	1.5659			0.0000			0.0000
Off-Road	0.4623	2.0032	23.2798	0.0388		9.2500e-003	9.2500e-003		9.2500e-003	9.2500e-003	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**0.4623**	**2.0032**	**23.2798**	**0.0388**	**10.3406**	**9.2500e-003**	**10.3498**	**1.5659**	**9.2500e-003**	**1.5752**	**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	0.3502	12.0943	2.9588	0.0364	0.8244	0.0369	0.8613	0.2259	0.0353	0.2613		3,990.0734	3,990.0734	0.3525		3,998.8849
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	0.0519	0.0337	0.3979	1.2300e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		122.1661	122.1661	3.4900e-003		122.2533
Total	**0.4021**	**12.1280**	**3.3566**	**0.0376**	**0.9477**	**0.0378**	**0.9854**	**0.2586**	**0.0361**	**0.2947**		**4,112.2395**	**4,112.2395**	**0.3560**		**4,121.1382**

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	0.0623	0.0405	0.4774	1.4700e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		146.5994	146.5994	4.1800e-003		146.7040
Total	**0.0623**	**0.0405**	**0.4774**	**1.4700e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**146.5994**	**146.5994**	**4.1800e-003**		**146.7040**

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	0.4656	2.0175	20.8690	0.0380		9.3100e-003	9.3100e-003		9.3100e-003	9.3100e-003	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**0.4656**	**2.0175**	**20.8690**	**0.0380**	**18.0663**	**9.3100e-003**	**18.0756**	**9.9307**	**9.3100e-003**	**9.9400**	**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	0.0623	0.0405	0.4774	1.4700e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		146.5994	146.5994	4.1800e-003		146.7040
Total	**0.0623**	**0.0405**	**0.4774**	**1.4700e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**146.5994**	**146.5994**	**4.1800e-003**		**146.7040**

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	0.1440	4.9709	1.2161	0.0150	0.3389	0.0152	0.3540	0.0929	0.0145	0.1074		1,639.9565	1,639.9565	0.1449		1,643.5781
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	0.0692	0.0449	0.5305	1.6300e-003	0.1643	1.1300e-003	0.1654	0.0436	1.0500e-003	0.0446		162.8882	162.8882	4.6500e-003		163.0044
Total	**0.2131**	**5.0158**	**1.7466**	**0.0166**	**0.5032**	**0.0163**	**0.5195**	**0.1364**	**0.0156**	**0.1520**		**1,802.8447**	**1,802.8447**	**0.1495**		**1,806.5825**

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	0.7616	3.3000	32.9991	0.0620		0.0152	0.0152		0.0152	0.0152	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**8.6733**	**0.0152**	**8.6886**	**3.5965**	**0.0152**	**3.6117**	**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	0.1440	4.9709	1.2161	0.0150	0.3389	0.0152	0.3540	0.0929	0.0145	0.1074		1,639.9565	1,639.9565	0.1449		1,643.5781
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	0.0692	0.0449	0.5305	1.6300e-003	0.1643	1.1300e-003	0.1654	0.0436	1.0500e-003	0.0446		162.8882	162.8882	4.6500e-003		163.0044
Total	**0.2131**	**5.0158**	**1.7466**	**0.0166**	**0.5032**	**0.0163**	**0.5195**	**0.1364**	**0.0156**	**0.1520**		**1,802.8447**	**1,802.8447**	**0.1495**		**1,806.5825**

3.5 Paving - 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					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.1834					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4390**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.5 Paving - 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	0.0519	0.0337	0.3979	1.2300e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		122.1661	122.1661	3.4900e-003		122.2533
Total	**0.0519**	**0.0337**	**0.3979**	**1.2300e-003**	**0.1232**	**8.5000e-004**	**0.1241**	**0.0327**	**7.8000e-004**	**0.0335**		**122.1661**	**122.1661**	**3.4900e-003**		**122.2533**

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		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.1834					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4639**	**1.2154**	**17.2957**	**0.0228**		**5.6100e-003**	**5.6100e-003**		**5.6100e-003**	**5.6100e-003**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.5 Paving - 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	0.0519	0.0337	0.3979	1.2300e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		122.1661	122.1661	3.4900e-003		122.2533
Total	**0.0519**	**0.0337**	**0.3979**	**1.2300e-003**	**0.1232**	**8.5000e-004**	**0.1241**	**0.0327**	**7.8000e-004**	**0.0335**		**122.1661**	**122.1661**	**3.4900e-003**		**122.2533**

3.6 Building Construction - 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					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.6 Building Construction - 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	0.1149	3.8695	0.9861	0.0103	0.2572	8.1300e-003	0.2654	0.0741	7.7700e-003	0.0818		1,107.1374	1,107.1374	0.0791		1,109.1151
Worker	0.7195	0.4674	5.5170	0.0170	1.7087	0.0118	1.7205	0.4532	0.0109	0.4641		1,694.0370	1,694.0370	0.0484		1,695.2457
Total	**0.8344**	**4.3369**	**6.5031**	**0.0273**	**1.9659**	**0.0199**	**1.9858**	**0.5273**	**0.0186**	**0.5459**		**2,801.1744**	**2,801.1744**	**0.1275**		**2,804.3608**

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		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.6 Building Construction - 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	0.1149	3.8695	0.9861	0.0103	0.2572	8.1300e-003	0.2654	0.0741	7.7700e-003	0.0818		1,107.1374	1,107.1374	0.0791		1,109.1151
Worker	0.7195	0.4674	5.5170	0.0170	1.7087	0.0118	1.7205	0.4532	0.0109	0.4641		1,694.0370	1,694.0370	0.0484		1,695.2457
Total	**0.8344**	**4.3369**	**6.5031**	**0.0273**	**1.9659**	**0.0199**	**1.9858**	**0.5273**	**0.0186**	**0.5459**		**2,801.1744**	**2,801.1744**	**0.1275**		**2,804.3608**

3.6 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**

3.6 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	0.1069	3.6568	0.9339	0.0102	0.2572	6.9900e-003	0.2642	0.0741	6.6900e-003	0.0807		1,096.7324	1,096.7324	0.0767		1,098.6495
Worker	0.6802	0.4262	5.1301	0.0164	1.7087	0.0116	1.7202	0.4532	0.0106	0.4639		1,631.8843	1,631.8843	0.0443		1,632.9923
Total	**0.7870**	**4.0831**	**6.0640**	**0.0266**	**1.9659**	**0.0185**	**1.9845**	**0.5273**	**0.0173**	**0.5446**		**2,728.6166**	**2,728.6166**	**0.1210**		**2,731.6418**

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		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.6 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	0.1069	3.6568	0.9339	0.0102	0.2572	6.9900e-003	0.2642	0.0741	6.6900e-003	0.0807		1,096.7324	1,096.7324	0.0767		1,098.6495
Worker	0.6802	0.4262	5.1301	0.0164	1.7087	0.0116	1.7202	0.4532	0.0106	0.4639		1,631.8843	1,631.8843	0.0443		1,632.9923
Total	**0.7870**	**4.0831**	**6.0640**	**0.0266**	**1.9659**	**0.0185**	**1.9845**	**0.5273**	**0.0173**	**0.5446**		**2,728.6166**	**2,728.6166**	**0.1210**		**2,731.6418**

3.6 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**

3.6 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	0.0824	2.8788	0.8555	9.9000e-003	0.2572	3.3900e-003	0.2606	0.0741	3.2400e-003	0.0773		1,069.0047	1,069.0047	0.0702		1,070.7599
Worker	0.6440	0.3893	4.7655	0.0157	1.7087	0.0113	1.7200	0.4532	0.0104	0.4636		1,569.4996	1,569.4996	0.0406		1,570.5138
Total	**0.7264**	**3.2681**	**5.6210**	**0.0256**	**1.9659**	**0.0147**	**1.9806**	**0.5273**	**0.0137**	**0.5409**		**2,638.5043**	**2,638.5043**	**0.1108**		**2,641.2737**

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		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.6 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	0.0824	2.8788	0.8555	9.9000e-003	0.2572	3.3900e-003	0.2606	0.0741	3.2400e-003	0.0773		1,069.0047	1,069.0047	0.0702		1,070.7599
Worker	0.6440	0.3893	4.7655	0.0157	1.7087	0.0113	1.7200	0.4532	0.0104	0.4636		1,569.4996	1,569.4996	0.0406		1,570.5138
Total	**0.7264**	**3.2681**	**5.6210**	**0.0256**	**1.9659**	**0.0147**	**1.9806**	**0.5273**	**0.0137**	**0.5409**		**2,638.5043**	**2,638.5043**	**0.1108**		**2,641.2737**

3.7 Architectural Coating - 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					
Archit. Coating	42.3790					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**42.5835**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 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	0.1373	0.0861	1.0359	3.3100e-003	0.3450	2.3300e-003	0.3474	0.0915	2.1500e-003	0.0937		329.5151	329.5151	8.9500e-003		329.7388
Total	**0.1373**	**0.0861**	**1.0359**	**3.3100e-003**	**0.3450**	**2.3300e-003**	**0.3474**	**0.0915**	**2.1500e-003**	**0.0937**		**329.5151**	**329.5151**	**8.9500e-003**		**329.7388**

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	42.3790					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**42.4087**	**0.1288**	**1.8324**	**2.9700e-003**		**5.9000e-004**	**5.9000e-004**		**5.9000e-004**	**5.9000e-004**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 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	0.1373	0.0861	1.0359	3.3100e-003	0.3450	2.3300e-003	0.3474	0.0915	2.1500e-003	0.0937		329.5151	329.5151	8.9500e-003		329.7388
Total	**0.1373**	**0.0861**	**1.0359**	**3.3100e-003**	**0.3450**	**2.3300e-003**	**0.3474**	**0.0915**	**2.1500e-003**	**0.0937**		**329.5151**	**329.5151**	**8.9500e-003**		**329.7388**

3.7 Architectural Coating - 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					
Archit. Coating	42.3790					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**42.5706**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 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	0.1300	0.0786	0.9623	3.1800e-003	0.3450	2.2900e-003	0.3473	0.0915	2.1000e-003	0.0936		316.9182	316.9182	8.1900e-003		317.1230
Total	**0.1300**	**0.0786**	**0.9623**	**3.1800e-003**	**0.3450**	**2.2900e-003**	**0.3473**	**0.0915**	**2.1000e-003**	**0.0936**		**316.9182**	**316.9182**	**8.1900e-003**		**317.1230**

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	42.3790					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**42.4087**	**0.1288**	**1.8324**	**2.9700e-003**		**5.9000e-004**	**5.9000e-004**		**5.9000e-004**	**5.9000e-004**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 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	0.1300	0.0786	0.9623	3.1800e-003	0.3450	2.2900e-003	0.3473	0.0915	2.1000e-003	0.0936		316.9182	316.9182	8.1900e-003		317.1230
Total	**0.1300**	**0.0786**	**0.9623**	**3.1800e-003**	**0.3450**	**2.2900e-003**	**0.3473**	**0.0915**	**2.1000e-003**	**0.0936**		**316.9182**	**316.9182**	**8.1900e-003**		**317.1230**

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	2.1086	7.5645	21.1426	0.0752	6.8145	0.0574	6.8718	1.8210	0.0534	1.8744		7,662.4833	7,662.4833	0.3846		7,672.0971
Unmitigated	2.1086	7.5645	21.1426	0.0752	6.8145	0.0574	6.8718	1.8210	0.0534	1.8744		7,662.4833	7,662.4833	0.3846		7,672.0971

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,182.00	1,182.00	1182.00	2,292,361	2,292,361
Condo/Townhouse	424.00	424.00	424.00	822,302	822,302
Parking Lot	0.00	0.00	0.00		
Quality Restaurant	84.00	84.00	84.00	99,638	99,638
Recreational Swimming Pool	0.00	0.00	0.00		
Total	1,690.00	1,690.00	1,690.00	3,214,302	3,214,302

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 Mid Rise	6.00	6.00	6.00	42.00	18.00	40.00	86	11	3
Condo/Townhouse	6.00	6.00	6.00	42.00	18.00	40.00	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Quality Restaurant	9.50	7.30	7.30	12.00	69.00	19.00	38	18	44
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Condo/Townhouse	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Parking Lot	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Quality Restaurant	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Recreational Swimming Pool	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0838	0.7259	0.3768	4.5700e-003		0.0579	0.0579		0.0579	0.0579		914.1282	914.1282	0.0175	0.0168	919.5604
NaturalGas Unmitigated	0.0838	0.7259	0.3768	4.5700e-003		0.0579	0.0579		0.0579	0.0579		914.1282	914.1282	0.0175	0.0168	919.5604

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 Mid Rise	4009.48	0.0432	0.3695	0.1572	2.3600e-003		0.0299	0.0299		0.0299	0.0299		471.7040	471.7040	9.0400e-003	8.6500e-003	474.5071
Condo/Townhouse	2088.47	0.0225	0.1925	0.0819	1.2300e-003		0.0156	0.0156		0.0156	0.0156		245.7022	245.7022	4.7100e-003	4.5000e-003	247.1623
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
Quality Restaurant	1672.14	0.0180	0.1639	0.1377	9.8000e-004		0.0125	0.0125		0.0125	0.0125		196.7220	196.7220	3.7700e-003	3.6100e-003	197.8910
Recreational Swimming Pool	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		**0.0838**	**0.7259**	**0.3768**	**4.5700e-003**		**0.0579**	**0.0579**		**0.0579**	**0.0579**		**914.1282**	**914.1282**	**0.0175**	**0.0168**	**919.5604**

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 Mid Rise	4.00948	0.0432	0.3695	0.1572	2.3600e-003		0.0299	0.0299		0.0299	0.0299		471.7040	471.7040	9.0400e-003	8.6500e-003	474.5071
Condo/Townhouse	2.08847	0.0225	0.1925	0.0819	1.2300e-003		0.0156	0.0156		0.0156	0.0156		245.7022	245.7022	4.7100e-003	4.5000e-003	247.1623
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
Quality Restaurant	1.67214	0.0180	0.1639	0.1377	9.8000e-004		0.0125	0.0125		0.0125	0.0125		196.7220	196.7220	3.7700e-003	3.6100e-003	197.8910
Recreational Swimming Pool	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		**0.0838**	**0.7259**	**0.3768**	**4.5700e-003**		**0.0579**	**0.0579**		**0.0579**	**0.0579**		**914.1282**	**914.1282**	**0.0175**	**0.0168**	**919.5604**

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	6.9392	0.2377	20.6331	1.0900e-003		0.1143	0.1143		0.1143	0.1143	0.0000	37.1734	37.1734	0.0357	0.0000	38.0665
Unmitigated	6.9392	0.2377	20.6331	1.0900e-003		0.1143	0.1143		0.1143	0.1143	0.0000	37.1734	37.1734	0.0357	0.0000	38.0665

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	lb/day										lb/day					
Architectural Coating	0.8708					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.4470					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.6214	0.2377	20.6331	1.0900e-003		0.1143	0.1143		0.1143	0.1143		37.1734	37.1734	0.0357		38.0665
Total	**6.9392**	**0.2377**	**20.6331**	**1.0900e-003**		**0.1143**	**0.1143**		**0.1143**	**0.1143**	**0.0000**	**37.1734**	**37.1734**	**0.0357**	**0.0000**	**38.0665**

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	0.8708					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.4470					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.6214	0.2377	20.6331	1.0900e-003		0.1143	0.1143		0.1143	0.1143		37.1734	37.1734	0.0357		38.0665
Total	**6.9392**	**0.2377**	**20.6331**	**1.0900e-003**		**0.1143**	**0.1143**		**0.1143**	**0.1143**	**0.0000**	**37.1734**	**37.1734**	**0.0357**	**0.0000**	**38.0665**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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

Fox Point

San Diego County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	156.00	Space	1.40	62,400.00	0
Quality Restaurant	3.50	1000sqft	0.48	3,500.00	0
Recreational Swimming Pool	1.80	1000sqft	0.04	1,800.00	0
Apartments Mid Rise	197.00	Dwelling Unit	13.60	197,000.00	563
Condo/Townhouse	53.00	Dwelling Unit	5.96	53,000.00	152

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	452.42	**CH4 Intensity (lb/MWhr)**	0.018	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - RPS 2024

Land Use - 21.48 acres

Construction Phase - cs

Trips and VMT -

Demolition -

Grading -

Architectural Coating - Rule 67 Paint

Vehicle Trips - Restaurant trips were modifid to reflect the total ADT of 1690 ADT per Traffic Study... VMT per trip is 6 miles based on TS.

Woodstoves - project would not install hearths

Area Coating - Rule 67 Paints

Energy Use -

Water And Wastewater - Corrected Water use per Water Study by Dexter Wilson Engineering Feb 2020-no correction taken for existing water useage 20,269,839 gallons per year. Proposed Use would 49,457,500 gallons per year or 135500 gpd * 365 d. Ratios based on CalEEMod defaults

Solid Waste -

Construction Off-road Equipment Mitigation - Tier 4 with DPF

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	100.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_EF_Nonresidential_Interior	250	100

tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	100
tblAreaCoating	Area_EF_Residential_Interior	250	100
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tblConstructionPhase	NumDays	20.00	22.00
tblConstructionPhase	NumDays	35.00	51.00
tblConstructionPhase	NumDays	10.00	15.00
tblFireplaces	NumberGas	108.35	0.00
tblFireplaces	NumberGas	29.15	0.00
tblFireplaces	NumberNoFireplace	19.70	197.00
tblFireplaces	NumberNoFireplace	5.30	53.00

tblFireplaces	NumberWood	68.95	0.00
tblFireplaces	NumberWood	18.55	0.00
tblGrading	MaterialImported	0.00	10,000.00
tblLandUse	LotAcreage	0.08	0.48
tblLandUse	LotAcreage	5.18	13.60
tblLandUse	LotAcreage	3.31	5.96
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.018
tblProjectCharacteristics	CO2IntensityFactor	720.49	452.42
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblVehicleTrips	HO_TL	7.50	6.00
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tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HS_TTP	18.80	18.00
tblVehicleTrips	HS_TTP	18.80	18.00
tblVehicleTrips	HW_TL	10.80	6.00
tblVehicleTrips	HW_TL	10.80	6.00
tblVehicleTrips	HW_TTP	41.60	42.00
tblVehicleTrips	HW_TTP	41.60	42.00
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tblVehicleTrips	SU_TR	5.86	6.00
tblVehicleTrips	SU_TR	4.84	8.00

tblVehicleTrips	SU_TR	72.16	24.00
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tblVehicleTrips	WD_TR	89.95	24.00
tblVehicleTrips	WD_TR	33.82	0.00
tblWater	IndoorWaterUseRate	12,835,343.05	22,786,126.00
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tblWater	IndoorWaterUseRate	1,062,367.99	1,885,984.00
tblWater	IndoorWaterUseRate	106,457.66	188,990.00
tblWater	OutdoorWaterUseRate	8,091,846.70	14,365,167.00
tblWater	OutdoorWaterUseRate	2,176,994.29	3,864,740.00
tblWater	OutdoorWaterUseRate	67,810.72	120,382.00
tblWater	OutdoorWaterUseRate	65,248.24	115,833.00
tblWoodstoves	NumberCatalytic	9.85	0.00
tblWoodstoves	NumberCatalytic	2.65	0.00
tblWoodstoves	NumberNoncatalytic	9.85	0.00
tblWoodstoves	NumberNoncatalytic	2.65	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	5.9153	64.4209	47.6970	0.1022	18.2141	2.6805	20.2596	9.9699	2.4667	11.8517	0.0000	10,093.4684	10,093.4684	2.8140	0.0000	10,163.8177
2022	45.3317	21.2435	25.0003	0.0583	2.3109	0.9119	3.2228	0.6188	0.8626	1.4814	0.0000	5,745.2856	5,745.2856	0.7619	0.0000	5,764.3326
2023	45.1128	19.0787	24.3551	0.0573	2.3109	0.7877	3.0987	0.6188	0.7452	1.3640	0.0000	5,649.1119	5,649.1119	0.7447	0.0000	5,667.7287
Maximum	**45.3317**	**64.4209**	**47.6970**	**0.1022**	**18.2141**	**2.6805**	**20.2596**	**9.9699**	**2.4667**	**11.8517**	**0.0000**	**10,093.4684**	**10,093.4684**	**2.8140**	**0.0000**	**10,163.8177**

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	1.5106	14.2397	52.4601	0.1022	18.2141	0.0478	18.2245	9.9699	0.0461	9.9802	0.0000	10,093.4684	10,093.4684	2.8140	0.0000	10,163.8177
2022	43.7785	6.5828	26.1160	0.0583	2.3109	0.0279	2.3388	0.6188	0.0265	0.6452	0.0000	5,745.2856	5,745.2856	0.7619	0.0000	5,764.3326
2023	43.7059	5.7543	25.5927	0.0573	2.3109	0.0239	2.3348	0.6188	0.0227	0.6415	0.0000	5,649.1119	5,649.1119	0.7447	0.0000	5,667.7287
Maximum	**43.7785**	**14.2397**	**52.4601**	**0.1022**	**18.2141**	**0.0478**	**18.2245**	**9.9699**	**0.0461**	**9.9802**	**0.0000**	**10,093.4684**	**10,093.4684**	**2.8140**	**0.0000**	**10,163.8177**

Fox Point - San Diego 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	N20	CO2e
Percent Reduction	**7.64**	**74.63**	**-7.33**	**0.00**	**0.00**	**97.73**	**13.86**	**0.00**	**97.66**	**23.34**	**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	6.9392	0.2377	20.6331	1.0900e-003		0.1143	0.1143		0.1143	0.1143	0.0000	37.1734	37.1734	0.0357	0.0000	38.0665
Energy	0.0838	0.7259	0.3768	4.5700e-003		0.0579	0.0579		0.0579	0.0579		914.1282	914.1282	0.0175	0.0168	919.5604
Mobile	2.0349	7.7168	21.1659	0.0712	6.8145	0.0578	6.8722	1.8210	0.0537	1.8748		7,264.9464	7,264.9464	0.3898		7,274.6920
Total	**9.0579**	**8.6804**	**42.1758**	**0.0769**	**6.8145**	**0.2300**	**7.0444**	**1.8210**	**0.2260**	**2.0470**	**0.0000**	**8,216.2480**	**8,216.2480**	**0.4431**	**0.0168**	**8,232.3189**

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	6.9392	0.2377	20.6331	1.0900e-003		0.1143	0.1143		0.1143	0.1143	0.0000	37.1734	37.1734	0.0357	0.0000	38.0665
Energy	0.0838	0.7259	0.3768	4.5700e-003		0.0579	0.0579		0.0579	0.0579		914.1282	914.1282	0.0175	0.0168	919.5604
Mobile	2.0349	7.7168	21.1659	0.0712	6.8145	0.0578	6.8722	1.8210	0.0537	1.8748		7,264.9464	7,264.9464	0.3898		7,274.6920
Total	**9.0579**	**8.6804**	**42.1758**	**0.0769**	**6.8145**	**0.2300**	**7.0444**	**1.8210**	**0.2260**	**2.0470**	**0.0000**	**8,216.2480**	**8,216.2480**	**0.4431**	**0.0168**	**8,232.3189**

	ROG	NOx	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	6/1/2021	6/30/2021	5	22	
2	Site Preparation	Site Preparation	7/1/2021	7/21/2021	5	15	
3	Grading	Grading	7/22/2021	9/30/2021	5	51	
4	Paving	Paving	9/1/2021	9/28/2021	5	20	
5	Building Construction	Building Construction	10/1/2021	1/20/2023	5	341	
6	Architectural Coating	Architectural Coating	10/1/2022	1/13/2023	5	75	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 127.5

Acres of Paving: 1.4

Residential Indoor: 506,250; Residential Outdoor: 168,750; Non-Residential Indoor: 5,250; Non-Residential Outdoor: 1,750; Striped Parking Area: 3,744 (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
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
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
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	1,038.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	989.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	208.00	38.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	42.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

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					10.3406	0.0000	10.3406	1.5659	0.0000	1.5659			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**	**10.3406**	**1.5513**	**11.8919**	**1.5659**	**1.4411**	**3.0070**		**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	0.3599	12.1986	3.1450	0.0358	0.8244	0.0377	0.8621	0.2259	0.0361	0.2620		3,921.1357	3,921.1357	0.3640		3,930.2368
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	0.0588	0.0378	0.3740	1.1500e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		114.6821	114.6821	3.2900e-003		114.7645
Total	**0.4188**	**12.2364**	**3.5190**	**0.0369**	**0.9477**	**0.0385**	**0.9862**	**0.2586**	**0.0368**	**0.2955**		**4,035.8179**	**4,035.8179**	**0.3673**		**4,045.0013**

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					10.3406	0.0000	10.3406	1.5659	0.0000	1.5659			0.0000			0.0000
Off-Road	0.4623	2.0032	23.2798	0.0388		9.2500e-003	9.2500e-003		9.2500e-003	9.2500e-003	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**0.4623**	**2.0032**	**23.2798**	**0.0388**	**10.3406**	**9.2500e-003**	**10.3498**	**1.5659**	**9.2500e-003**	**1.5752**	**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	0.3599	12.1986	3.1450	0.0358	0.8244	0.0377	0.8621	0.2259	0.0361	0.2620		3,921.1357	3,921.1357	0.3640		3,930.2368
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	0.0588	0.0378	0.3740	1.1500e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		114.6821	114.6821	3.2900e-003		114.7645
Total	**0.4188**	**12.2364**	**3.5190**	**0.0369**	**0.9477**	**0.0385**	**0.9862**	**0.2586**	**0.0368**	**0.2955**		**4,035.8179**	**4,035.8179**	**0.3673**		**4,045.0013**

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	0.0706	0.0454	0.4488	1.3800e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		137.6186	137.6186	3.9500e-003		137.7174
Total	**0.0706**	**0.0454**	**0.4488**	**1.3800e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**137.6186**	**137.6186**	**3.9500e-003**		**137.7174**

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	0.4656	2.0175	20.8690	0.0380		9.3100e-003	9.3100e-003		9.3100e-003	9.3100e-003	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**0.4656**	**2.0175**	**20.8690**	**0.0380**	**18.0663**	**9.3100e-003**	**18.0756**	**9.9307**	**9.3100e-003**	**9.9400**	**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	0.0706	0.0454	0.4488	1.3800e-003	0.1479	1.0200e-003	0.1489	0.0392	9.4000e-004	0.0402		137.6186	137.6186	3.9500e-003		137.7174
Total	**0.0706**	**0.0454**	**0.4488**	**1.3800e-003**	**0.1479**	**1.0200e-003**	**0.1489**	**0.0392**	**9.4000e-004**	**0.0402**		**137.6186**	**137.6186**	**3.9500e-003**		**137.7174**

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	0.1479	5.0137	1.2926	0.0147	0.3389	0.0155	0.3543	0.0929	0.0148	0.1077		1,611.6225	1,611.6225	0.1496		1,615.3631
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	0.0785	0.0505	0.4987	1.5300e-003	0.1643	1.1300e-003	0.1654	0.0436	1.0500e-003	0.0446		152.9095	152.9095	4.3900e-003		153.0193
Total	**0.2264**	**5.0642**	**1.7913**	**0.0162**	**0.5032**	**0.0166**	**0.5198**	**0.1364**	**0.0159**	**0.1523**		**1,764.5320**	**1,764.5320**	**0.1540**		**1,768.3825**

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	0.7616	3.3000	32.9991	0.0620		0.0152	0.0152		0.0152	0.0152	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**0.7616**	**3.3000**	**32.9991**	**0.0620**	**8.6733**	**0.0152**	**8.6886**	**3.5965**	**0.0152**	**3.6117**	**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	0.1479	5.0137	1.2926	0.0147	0.3389	0.0155	0.3543	0.0929	0.0148	0.1077		1,611.6225	1,611.6225	0.1496		1,615.3631
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	0.0785	0.0505	0.4987	1.5300e-003	0.1643	1.1300e-003	0.1654	0.0436	1.0500e-003	0.0446		152.9095	152.9095	4.3900e-003		153.0193
Total	**0.2264**	**5.0642**	**1.7913**	**0.0162**	**0.5032**	**0.0166**	**0.5198**	**0.1364**	**0.0159**	**0.1523**		**1,764.5320**	**1,764.5320**	**0.1540**		**1,768.3825**

3.5 Paving - 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					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.1834					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4390**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.5 Paving - 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	0.0588	0.0378	0.3740	1.1500e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		114.6821	114.6821	3.2900e-003		114.7645
Total	**0.0588**	**0.0378**	**0.3740**	**1.1500e-003**	**0.1232**	**8.5000e-004**	**0.1241**	**0.0327**	**7.8000e-004**	**0.0335**		**114.6821**	**114.6821**	**3.2900e-003**		**114.7645**

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		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.1834					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4639**	**1.2154**	**17.2957**	**0.0228**		**5.6100e-003**	**5.6100e-003**		**5.6100e-003**	**5.6100e-003**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.5 Paving - 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	0.0588	0.0378	0.3740	1.1500e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		114.6821	114.6821	3.2900e-003		114.7645
Total	**0.0588**	**0.0378**	**0.3740**	**1.1500e-003**	**0.1232**	**8.5000e-004**	**0.1241**	**0.0327**	**7.8000e-004**	**0.0335**		**114.6821**	**114.6821**	**3.2900e-003**		**114.7645**

3.6 Building Construction - 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					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.6 Building Construction - 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	0.1211	3.8592	1.0980	0.0100	0.2572	8.4600e-003	0.2657	0.0741	8.0900e-003	0.0821		1,078.5133	1,078.5133	0.0840		1,080.6138
Worker	0.8159	0.5247	5.1860	0.0160	1.7087	0.0118	1.7205	0.4532	0.0109	0.4641		1,590.2590	1,590.2590	0.0457		1,591.4012
Total	**0.9370**	**4.3839**	**6.2840**	**0.0260**	**1.9659**	**0.0203**	**1.9862**	**0.5273**	**0.0190**	**0.5462**		**2,668.7723**	**2,668.7723**	**0.1297**		**2,672.0150**

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		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.6 Building Construction - 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	0.1211	3.8592	1.0980	0.0100	0.2572	8.4600e-003	0.2657	0.0741	8.0900e-003	0.0821		1,078.5133	1,078.5133	0.0840		1,080.6138
Worker	0.8159	0.5247	5.1860	0.0160	1.7087	0.0118	1.7205	0.4532	0.0109	0.4641		1,590.2590	1,590.2590	0.0457		1,591.4012
Total	**0.9370**	**4.3839**	**6.2840**	**0.0260**	**1.9659**	**0.0203**	**1.9862**	**0.5273**	**0.0190**	**0.5462**		**2,668.7723**	**2,668.7723**	**0.1297**		**2,672.0150**

3.6 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**

3.6 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	0.1127	3.6445	1.0396	9.9200e-003	0.2572	7.2900e-003	0.2645	0.0741	6.9700e-003	0.0810		1,068.1900	1,068.1900	0.0813		1,070.2234
Worker	0.7732	0.4783	4.8121	0.0154	1.7087	0.0116	1.7202	0.4532	0.0106	0.4639		1,531.9732	1,531.9732	0.0418		1,533.0189
Total	**0.8858**	**4.1228**	**5.8517**	**0.0253**	**1.9659**	**0.0188**	**1.9848**	**0.5273**	**0.0176**	**0.5449**		**2,600.1632**	**2,600.1632**	**0.1232**		**2,603.2423**

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		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.6 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	0.1127	3.6445	1.0396	9.9200e-003	0.2572	7.2900e-003	0.2645	0.0741	6.9700e-003	0.0810		1,068.1900	1,068.1900	0.0813		1,070.2234
Worker	0.7732	0.4783	4.8121	0.0154	1.7087	0.0116	1.7202	0.4532	0.0106	0.4639		1,531.9732	1,531.9732	0.0418		1,533.0189
Total	**0.8858**	**4.1228**	**5.8517**	**0.0253**	**1.9659**	**0.0188**	**1.9848**	**0.5273**	**0.0176**	**0.5449**		**2,600.1632**	**2,600.1632**	**0.1232**		**2,603.2423**

3.6 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**

3.6 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	0.0870	2.8660	0.9391	9.6500e-003	0.2572	3.5800e-003	0.2608	0.0741	3.4200e-003	0.0775		1,041.4634	1,041.4634	0.0740		1,043.3143
Worker	0.7341	0.4367	4.4603	0.0148	1.7087	0.0113	1.7200	0.4532	0.0104	0.4636		1,473.4641	1,473.4641	0.0382		1,474.4199
Total	**0.8211**	**3.3027**	**5.3994**	**0.0244**	**1.9659**	**0.0149**	**1.9808**	**0.5273**	**0.0138**	**0.5411**		**2,514.9275**	**2,514.9275**	**0.1123**		**2,517.7342**

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		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.6 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	0.0870	2.8660	0.9391	9.6500e-003	0.2572	3.5800e-003	0.2608	0.0741	3.4200e-003	0.0775		1,041.4634	1,041.4634	0.0740		1,043.3143
Worker	0.7341	0.4367	4.4603	0.0148	1.7087	0.0113	1.7200	0.4532	0.0104	0.4636		1,473.4641	1,473.4641	0.0382		1,474.4199
Total	**0.8211**	**3.3027**	**5.3994**	**0.0244**	**1.9659**	**0.0149**	**1.9808**	**0.5273**	**0.0138**	**0.5411**		**2,514.9275**	**2,514.9275**	**0.1123**		**2,517.7342**

3.7 Architectural Coating - 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					
Archit. Coating	42.3790					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**42.5835**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 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	0.1561	0.0966	0.9717	3.1000e-003	0.3450	2.3300e-003	0.3474	0.0915	2.1500e-003	0.0937		309.3408	309.3408	8.4500e-003		309.5519
Total	**0.1561**	**0.0966**	**0.9717**	**3.1000e-003**	**0.3450**	**2.3300e-003**	**0.3474**	**0.0915**	**2.1500e-003**	**0.0937**		**309.3408**	**309.3408**	**8.4500e-003**		**309.5519**

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	42.3790					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**42.4087**	**0.1288**	**1.8324**	**2.9700e-003**		**5.9000e-004**	**5.9000e-004**		**5.9000e-004**	**5.9000e-004**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 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	0.1561	0.0966	0.9717	3.1000e-003	0.3450	2.3300e-003	0.3474	0.0915	2.1500e-003	0.0937		309.3408	309.3408	8.4500e-003		309.5519
Total	**0.1561**	**0.0966**	**0.9717**	**3.1000e-003**	**0.3450**	**2.3300e-003**	**0.3474**	**0.0915**	**2.1500e-003**	**0.0937**		**309.3408**	**309.3408**	**8.4500e-003**		**309.5519**

3.7 Architectural Coating - 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					
Archit. Coating	42.3790					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**42.5706**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 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	0.1482	0.0882	0.9006	2.9800e-003	0.3450	2.2900e-003	0.3473	0.0915	2.1000e-003	0.0936		297.5264	297.5264	7.7200e-003		297.7194
Total	**0.1482**	**0.0882**	**0.9006**	**2.9800e-003**	**0.3450**	**2.2900e-003**	**0.3473**	**0.0915**	**2.1000e-003**	**0.0936**		**297.5264**	**297.5264**	**7.7200e-003**		**297.7194**

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	42.3790					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**42.4087**	**0.1288**	**1.8324**	**2.9700e-003**		**5.9000e-004**	**5.9000e-004**		**5.9000e-004**	**5.9000e-004**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 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	0.1482	0.0882	0.9006	2.9800e-003	0.3450	2.2900e-003	0.3473	0.0915	2.1000e-003	0.0936		297.5264	297.5264	7.7200e-003		297.7194
Total	**0.1482**	**0.0882**	**0.9006**	**2.9800e-003**	**0.3450**	**2.2900e-003**	**0.3473**	**0.0915**	**2.1000e-003**	**0.0936**		**297.5264**	**297.5264**	**7.7200e-003**		**297.7194**

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	2.0349	7.7168	21.1659	0.0712	6.8145	0.0578	6.8722	1.8210	0.0537	1.8748		7,264.9464	7,264.9464	0.3898		7,274.6920
Unmitigated	2.0349	7.7168	21.1659	0.0712	6.8145	0.0578	6.8722	1.8210	0.0537	1.8748		7,264.9464	7,264.9464	0.3898		7,274.6920

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,182.00	1,182.00	1182.00	2,292,361	2,292,361
Condo/Townhouse	424.00	424.00	424.00	822,302	822,302
Parking Lot	0.00	0.00	0.00		
Quality Restaurant	84.00	84.00	84.00	99,638	99,638
Recreational Swimming Pool	0.00	0.00	0.00		
Total	1,690.00	1,690.00	1,690.00	3,214,302	3,214,302

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 Mid Rise	6.00	6.00	6.00	42.00	18.00	40.00	86	11	3
Condo/Townhouse	6.00	6.00	6.00	42.00	18.00	40.00	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Quality Restaurant	9.50	7.30	7.30	12.00	69.00	19.00	38	18	44
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Condo/Townhouse	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Parking Lot	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Quality Restaurant	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Recreational Swimming Pool	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0838	0.7259	0.3768	4.5700e-003		0.0579	0.0579		0.0579	0.0579		914.1282	914.1282	0.0175	0.0168	919.5604
NaturalGas Unmitigated	0.0838	0.7259	0.3768	4.5700e-003		0.0579	0.0579		0.0579	0.0579		914.1282	914.1282	0.0175	0.0168	919.5604

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 Mid Rise	4009.48	0.0432	0.3695	0.1572	2.3600e-003		0.0299	0.0299		0.0299	0.0299		471.7040	471.7040	9.0400e-003	8.6500e-003	474.5071
Condo/Townhouse	2088.47	0.0225	0.1925	0.0819	1.2300e-003		0.0156	0.0156		0.0156	0.0156		245.7022	245.7022	4.7100e-003	4.5000e-003	247.1623
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
Quality Restaurant	1672.14	0.0180	0.1639	0.1377	9.8000e-004		0.0125	0.0125		0.0125	0.0125		196.7220	196.7220	3.7700e-003	3.6100e-003	197.8910
Recreational Swimming Pool	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		**0.0838**	**0.7259**	**0.3768**	**4.5700e-003**		**0.0579**	**0.0579**		**0.0579**	**0.0579**		**914.1282**	**914.1282**	**0.0175**	**0.0168**	**919.5604**

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 Mid Rise	4.00948	0.0432	0.3695	0.1572	2.3600e-003		0.0299	0.0299		0.0299	0.0299		471.7040	471.7040	9.0400e-003	8.6500e-003	474.5071
Condo/Townhouse	2.08847	0.0225	0.1925	0.0819	1.2300e-003		0.0156	0.0156		0.0156	0.0156		245.7022	245.7022	4.7100e-003	4.5000e-003	247.1623
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
Quality Restaurant	1.67214	0.0180	0.1639	0.1377	9.8000e-004		0.0125	0.0125		0.0125	0.0125		196.7220	196.7220	3.7700e-003	3.6100e-003	197.8910
Recreational Swimming Pool	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		**0.0838**	**0.7259**	**0.3768**	**4.5700e-003**		**0.0579**	**0.0579**		**0.0579**	**0.0579**		**914.1282**	**914.1282**	**0.0175**	**0.0168**	**919.5604**

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	6.9392	0.2377	20.6331	1.0900e-003		0.1143	0.1143		0.1143	0.1143	0.0000	37.1734	37.1734	0.0357	0.0000	38.0665
Unmitigated	6.9392	0.2377	20.6331	1.0900e-003		0.1143	0.1143		0.1143	0.1143	0.0000	37.1734	37.1734	0.0357	0.0000	38.0665

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	lb/day										lb/day					
Architectural Coating	0.8708					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.4470					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.6214	0.2377	20.6331	1.0900e-003		0.1143	0.1143		0.1143	0.1143		37.1734	37.1734	0.0357		38.0665
Total	**6.9392**	**0.2377**	**20.6331**	**1.0900e-003**		**0.1143**	**0.1143**		**0.1143**	**0.1143**	**0.0000**	**37.1734**	**37.1734**	**0.0357**	**0.0000**	**38.0665**

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	0.8708					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	5.4470					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.6214	0.2377	20.6331	1.0900e-003		0.1143	0.1143		0.1143	0.1143		37.1734	37.1734	0.0357		38.0665
Total	**6.9392**	**0.2377**	**20.6331**	**1.0900e-003**		**0.1143**	**0.1143**		**0.1143**	**0.1143**	**0.0000**	**37.1734**	**37.1734**	**0.0357**	**0.0000**	**38.0665**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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

Fox Point

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	156.00	Space	1.40	62,400.00	0
Quality Restaurant	3.50	1000sqft	0.48	3,500.00	0
Recreational Swimming Pool	1.80	1000sqft	0.04	1,800.00	0
Apartments Mid Rise	197.00	Dwelling Unit	13.60	197,000.00	563
Condo/Townhouse	53.00	Dwelling Unit	5.96	53,000.00	152

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	452.42	**CH4 Intensity (lb/MWhr)**	0.018	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - RPS 2024

Land Use - 21.48 acres

Construction Phase - cs

Trips and VMT -

Demolition -

Grading -

Architectural Coating - Rule 67 Paint

Vehicle Trips - Restaurant trips were modifid to reflect the total ADT of 1690 ADT per Traffic Study... VMT per trip is 6 miles based on TS.

Woodstoves - project would not install hearths

Area Coating - Rule 67 Paints

Energy Use -

Water And Wastewater - Corrected Water use per Water Study by Dexter Wilson Engineering Feb 2020-no correction taken for existing water useage 20,269,839 gallons per year. Proposed Use would 49,457,500 gallons per year or 135500 gpd * 365 d. Ratios based on CalEEMod defaults

Solid Waste -

Construction Off-road Equipment Mitigation - Tier 4 with DPF

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	100.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_EF_Nonresidential_Interior	250	100

tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	100
tblAreaCoating	Area_EF_Residential_Interior	250	100
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tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstructionPhase	NumDays	20.00	22.00
tblConstructionPhase	NumDays	35.00	51.00
tblConstructionPhase	NumDays	10.00	15.00
tblFireplaces	NumberGas	108.35	0.00
tblFireplaces	NumberGas	29.15	0.00
tblFireplaces	NumberNoFireplace	19.70	197.00
tblFireplaces	NumberNoFireplace	5.30	53.00

tblFireplaces	NumberWood	68.95	0.00
tblFireplaces	NumberWood	18.55	0.00
tblGrading	MaterialImported	0.00	10,000.00
tblLandUse	LotAcreage	0.08	0.48
tblLandUse	LotAcreage	5.18	13.60
tblLandUse	LotAcreage	3.31	5.96
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.018
tblProjectCharacteristics	CO2IntensityFactor	720.49	452.42
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HO_TTP	39.60	40.00
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tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HS_TTP	18.80	18.00
tblVehicleTrips	HS_TTP	18.80	18.00
tblVehicleTrips	HW_TL	10.80	6.00
tblVehicleTrips	HW_TL	10.80	6.00
tblVehicleTrips	HW_TTP	41.60	42.00
tblVehicleTrips	HW_TTP	41.60	42.00
tblVehicleTrips	ST_TR	6.39	6.00
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tblVehicleTrips	ST_TR	94.36	24.00
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	5.86	6.00
tblVehicleTrips	SU_TR	4.84	8.00

tblVehicleTrips	SU_TR	72.16	24.00
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tblVehicleTrips	WD_TR	6.65	6.00
tblVehicleTrips	WD_TR	5.81	8.00
tblVehicleTrips	WD_TR	89.95	24.00
tblVehicleTrips	WD_TR	33.82	0.00
tblWater	IndoorWaterUseRate	12,835,343.05	22,786,126.00
tblWater	IndoorWaterUseRate	3,453,163.36	6,130,278.00
tblWater	IndoorWaterUseRate	1,062,367.99	1,885,984.00
tblWater	IndoorWaterUseRate	106,457.66	188,990.00
tblWater	OutdoorWaterUseRate	8,091,846.70	14,365,167.00
tblWater	OutdoorWaterUseRate	2,176,994.29	3,864,740.00
tblWater	OutdoorWaterUseRate	67,810.72	120,382.00
tblWater	OutdoorWaterUseRate	65,248.24	115,833.00
tblWoodstoves	NumberCatalytic	9.85	0.00
tblWoodstoves	NumberCatalytic	2.65	0.00
tblWoodstoves	NumberNoncatalytic	9.85	0.00
tblWoodstoves	NumberNoncatalytic	2.65	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	0.2867	2.9502	2.1719	5.1300e-003	0.5588	0.1230	0.6818	0.2073	0.1140	0.3212	0.0000	462.6874	462.6874	0.0995	0.0000	465.1741
2022	1.7134	2.6194	2.9732	7.0300e-003	0.2606	0.1103	0.3709	0.0700	0.1039	0.1739	0.0000	629.1584	629.1584	0.0872	0.0000	631.3388
2023	0.2308	0.1398	0.1757	4.2000e-004	0.0161	5.7200e-003	0.0218	4.3200e-003	5.4100e-003	9.7200e-003	0.0000	37.3451	37.3451	5.0000e-003	0.0000	37.4701
Maximum	**1.7134**	**2.9502**	**2.9732**	**7.0300e-003**	**0.5588**	**0.1230**	**0.6818**	**0.2073**	**0.1140**	**0.3212**	**0.0000**	**629.1584**	**629.1584**	**0.0995**	**0.0000**	**631.3388**

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	0.0821	0.6202	2.2983	5.1300e-003	0.5588	2.3300e-003	0.5612	0.2073	2.2500e-003	0.2095	0.0000	462.6871	462.6871	0.0995	0.0000	465.1738
2022	1.5285	0.8383	3.1164	7.0300e-003	0.2606	3.3200e-003	0.2639	0.0700	3.1500e-003	0.0732	0.0000	629.1580	629.1580	0.0872	0.0000	631.3385
2023	0.2207	0.0428	0.1849	4.2000e-004	0.0161	1.7000e-004	0.0163	4.3200e-003	1.6000e-004	4.4800e-003	0.0000	37.3451	37.3451	5.0000e-003	0.0000	37.4701
Maximum	**1.5285**	**0.8383**	**3.1164**	**7.0300e-003**	**0.5588**	**3.3200e-003**	**0.5612**	**0.2073**	**3.1500e-003**	**0.2095**	**0.0000**	**629.1580**	**629.1580**	**0.0995**	**0.0000**	**631.3385**

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	ROG	NOx	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	**17.91**	**73.70**	**-5.24**	**0.00**	**0.00**	**97.56**	**21.70**	**0.00**	**97.51**	**43.12**	**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	**6-1-2021**	**8-31-2021**	1.6561	0.3161
2	**9-1-2021**	**11-30-2021**	1.2796	0.2889
3	**12-1-2021**	**2-28-2022**	0.7435	0.2468
4	**3-1-2022**	**5-31-2022**	0.7307	0.2457
5	**6-1-2022**	**8-31-2022**	0.7292	0.2442
6	**9-1-2022**	**11-30-2022**	1.6882	1.1768
7	**12-1-2022**	**2-28-2023**	1.0853	0.8039
		Highest	1.6882	1.1768

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	1.2089	0.0214	1.8570	1.0000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	3.0351	3.0351	2.9200e-003	0.0000	3.1080
Energy	0.0153	0.1325	0.0688	8.3000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	400.1660	400.1660	0.0128	4.9700e-003	401.9684
Mobile	0.3603	1.4095	3.7924	0.0131	1.2111	0.0105	1.2216	0.3243	9.7300e-003	0.3340	0.0000	1,212.2790	1,212.2790	0.0635	0.0000	1,213.8658
Waste						0.0000	0.0000		0.0000	0.0000	26.0742	0.0000	26.0742	1.5409	0.0000	64.5977
Water						0.0000	0.0000		0.0000	0.0000	9.8321	124.9134	134.7455	1.0148	0.0250	167.5510
Total	**1.5845**	**1.5634**	**5.7182**	**0.0140**	**1.2111**	**0.0313**	**1.2424**	**0.3243**	**0.0306**	**0.3549**	**35.9063**	**1,740.3935**	**1,776.2998**	**2.6350**	**0.0299**	**1,851.0910**

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	1.2089	0.0214	1.8570	1.0000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	3.0351	3.0351	2.9200e-003	0.0000	3.1080
Energy	0.0153	0.1325	0.0688	8.3000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	360.6885	360.6885	0.0112	4.6300e-003	362.3476
Mobile	0.3603	1.4095	3.7924	0.0131	1.2111	0.0105	1.2216	0.3243	9.7300e-003	0.3340	0.0000	1,212.2790	1,212.2790	0.0635	0.0000	1,213.8658
Waste						0.0000	0.0000		0.0000	0.0000	13.0371	0.0000	13.0371	0.7705	0.0000	32.2989
Water						0.0000	0.0000		0.0000	0.0000	7.8657	73.7221	81.5878	0.8108	0.0197	107.7370
Total	**1.5845**	**1.5634**	**5.7182**	**0.0140**	**1.2111**	**0.0313**	**1.2424**	**0.3243**	**0.0306**	**0.3549**	**20.9028**	**1,649.7246**	**1,670.6274**	**1.6589**	**0.0244**	**1,719.3573**

	ROG	NOx	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**	**41.79**	**5.21**	**5.95**	**37.04**	**18.58**	**7.12**

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	6/1/2021	6/30/2021	5	22	
2	Site Preparation	Site Preparation	7/1/2021	7/21/2021	5	15	
3	Grading	Grading	7/22/2021	9/30/2021	5	51	
4	Paving	Paving	9/1/2021	9/28/2021	5	20	
5	Building Construction	Building Construction	10/1/2021	1/20/2023	5	341	
6	Architectural Coating	Architectural Coating	10/1/2022	1/13/2023	5	75	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 127.5

Acres of Paving: 1.4

Residential Indoor: 506,250; Residential Outdoor: 168,750; Non-Residential Indoor: 5,250; Non-Residential Outdoor: 1,750; Striped Parking Area: 3,744 (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
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
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
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	1,038.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	989.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	208.00	38.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	42.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

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					0.1138	0.0000	0.1138	0.0172	0.0000	0.0172	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0348	0.3459	0.2372	4.3000e-004		0.0171	0.0171		0.0159	0.0159	0.0000	37.4009	37.4009	0.0105	0.0000	37.6640
Total	**0.0348**	**0.3459**	**0.2372**	**4.3000e-004**	**0.1138**	**0.0171**	**0.1308**	**0.0172**	**0.0159**	**0.0331**	**0.0000**	**37.4009**	**37.4009**	**0.0105**	**0.0000**	**37.6640**

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	3.9000e-003	0.1355	0.0334	4.0000e-004	8.8800e-003	4.1000e-004	9.2900e-003	2.4400e-003	3.9000e-004	2.8300e-003	0.0000	39.5281	39.5281	3.5700e-003	0.0000	39.6173
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	5.7000e-004	4.1000e-004	4.1200e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1559	1.1559	3.0000e-005	0.0000	1.1567
Total	**4.4700e-003**	**0.1360**	**0.0376**	**4.1000e-004**	**0.0102**	**4.2000e-004**	**0.0106**	**2.7900e-003**	**4.0000e-004**	**3.1900e-003**	**0.0000**	**40.6840**	**40.6840**	**3.6000e-003**	**0.0000**	**40.7740**

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					0.1138	0.0000	0.1138	0.0172	0.0000	0.0172	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0900e-003	0.0220	0.2561	4.3000e-004		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	37.4008	37.4008	0.0105	0.0000	37.6640
Total	**5.0900e-003**	**0.0220**	**0.2561**	**4.3000e-004**	**0.1138**	**1.0000e-004**	**0.1139**	**0.0172**	**1.0000e-004**	**0.0173**	**0.0000**	**37.4008**	**37.4008**	**0.0105**	**0.0000**	**37.6640**

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	3.9000e-003	0.1355	0.0334	4.0000e-004	8.8800e-003	4.1000e-004	9.2900e-003	2.4400e-003	3.9000e-004	2.8300e-003	0.0000	39.5281	39.5281	3.5700e-003	0.0000	39.6173
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	5.7000e-004	4.1000e-004	4.1200e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1559	1.1559	3.0000e-005	0.0000	1.1567
Total	**4.4700e-003**	**0.1360**	**0.0376**	**4.1000e-004**	**0.0102**	**4.2000e-004**	**0.0106**	**2.7900e-003**	**4.0000e-004**	**3.1900e-003**	**0.0000**	**40.6840**	**40.6840**	**3.6000e-003**	**0.0000**	**40.7740**

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					0.1355	0.0000	0.1355	0.0745	0.0000	0.0745	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0292	0.3037	0.1587	2.9000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	25.0768	25.0768	8.1100e-003	0.0000	25.2796
Total	**0.0292**	**0.3037**	**0.1587**	**2.9000e-004**	**0.1355**	**0.0153**	**0.1508**	**0.0745**	**0.0141**	**0.0886**	**0.0000**	**25.0768**	**25.0768**	**8.1100e-003**	**0.0000**	**25.2796**

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	4.7000e-004	3.3000e-004	3.3700e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0900e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.9457	0.9457	3.0000e-005	0.0000	0.9464
Total	**4.7000e-004**	**3.3000e-004**	**3.3700e-003**	**1.0000e-005**	**1.0800e-003**	**1.0000e-005**	**1.0900e-003**	**2.9000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.9457**	**0.9457**	**3.0000e-005**	**0.0000**	**0.9464**

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					0.1355	0.0000	0.1355	0.0745	0.0000	0.0745	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4900e-003	0.0151	0.1565	2.9000e-004		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	25.0768	25.0768	8.1100e-003	0.0000	25.2795
Total	**3.4900e-003**	**0.0151**	**0.1565**	**2.9000e-004**	**0.1355**	**7.0000e-005**	**0.1356**	**0.0745**	**7.0000e-005**	**0.0746**	**0.0000**	**25.0768**	**25.0768**	**8.1100e-003**	**0.0000**	**25.2795**

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	4.7000e-004	3.3000e-004	3.3700e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0900e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.9457	0.9457	3.0000e-005	0.0000	0.9464
Total	**4.7000e-004**	**3.3000e-004**	**3.3700e-003**	**1.0000e-005**	**1.0800e-003**	**1.0000e-005**	**1.0900e-003**	**2.9000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.9457**	**0.9457**	**3.0000e-005**	**0.0000**	**0.9464**

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					0.2212	0.0000	0.2212	0.0917	0.0000	0.0917	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1069	1.1832	0.7874	1.5800e-003		0.0506	0.0506		0.0466	0.0466	0.0000	138.9622	138.9622	0.0449	0.0000	140.0858
Total	**0.1069**	**1.1832**	**0.7874**	**1.5800e-003**	**0.2212**	**0.0506**	**0.2718**	**0.0917**	**0.0466**	**0.1383**	**0.0000**	**138.9622**	**138.9622**	**0.0449**	**0.0000**	**140.0858**

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	3.7100e-003	0.1292	0.0319	3.8000e-004	8.4600e-003	3.9000e-004	8.8500e-003	2.3200e-003	3.7000e-004	2.7000e-003	0.0000	37.6622	37.6622	3.4000e-003	0.0000	37.7471
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	1.7700e-003	1.2600e-003	0.0127	4.0000e-005	4.0900e-003	3.0000e-005	4.1200e-003	1.0900e-003	3.0000e-005	1.1100e-003	0.0000	3.5727	3.5727	1.0000e-004	0.0000	3.5752
Total	**5.4800e-003**	**0.1304**	**0.0446**	**4.2000e-004**	**0.0126**	**4.2000e-004**	**0.0130**	**3.4100e-003**	**4.0000e-004**	**3.8100e-003**	**0.0000**	**41.2348**	**41.2348**	**3.5000e-003**	**0.0000**	**41.3224**

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					0.2212	0.0000	0.2212	0.0917	0.0000	0.0917	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.0842	0.8415	1.5800e-003		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004	0.0000	138.9620	138.9620	0.0449	0.0000	140.0856
Total	**0.0194**	**0.0842**	**0.8415**	**1.5800e-003**	**0.2212**	**3.9000e-004**	**0.2216**	**0.0917**	**3.9000e-004**	**0.0921**	**0.0000**	**138.9620**	**138.9620**	**0.0449**	**0.0000**	**140.0856**

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	3.7100e-003	0.1292	0.0319	3.8000e-004	8.4600e-003	3.9000e-004	8.8500e-003	2.3200e-003	3.7000e-004	2.7000e-003	0.0000	37.6622	37.6622	3.4000e-003	0.0000	37.7471
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	1.7700e-003	1.2600e-003	0.0127	4.0000e-005	4.0900e-003	3.0000e-005	4.1200e-003	1.0900e-003	3.0000e-005	1.1100e-003	0.0000	3.5727	3.5727	1.0000e-004	0.0000	3.5752
Total	**5.4800e-003**	**0.1304**	**0.0446**	**4.2000e-004**	**0.0126**	**4.2000e-004**	**0.0130**	**3.4100e-003**	**4.0000e-004**	**3.8100e-003**	**0.0000**	**41.2348**	**41.2348**	**3.5000e-003**	**0.0000**	**41.3224**

3.5 Paving - 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					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	1.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0144**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.5 Paving - 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	5.2000e-004	3.7000e-004	3.7500e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0508	1.0508	3.0000e-005	0.0000	1.0515
Total	**5.2000e-004**	**3.7000e-004**	**3.7500e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0508**	**1.0508**	**3.0000e-005**	**0.0000**	**1.0515**

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		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	1.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.6300e-003**	**0.0122**	**0.1730**	**2.3000e-004**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.5 Paving - 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	5.2000e-004	3.7000e-004	3.7500e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0508	1.0508	3.0000e-005	0.0000	1.0515
Total	**5.2000e-004**	**3.7000e-004**	**3.7500e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0508**	**1.0508**	**3.0000e-005**	**0.0000**	**1.0515**

3.6 Building Construction - 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					
Off-Road	0.0627	0.5753	0.5470	8.9000e-004		0.0316	0.0316		0.0297	0.0297	0.0000	76.4403	76.4403	0.0184	0.0000	76.9013
Total	**0.0627**	**0.5753**	**0.5470**	**8.9000e-004**		**0.0316**	**0.0316**		**0.0297**	**0.0297**	**0.0000**	**76.4403**	**76.4403**	**0.0184**	**0.0000**	**76.9013**

3.6 Building Construction - 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	3.8800e-003	0.1289	0.0344	3.4000e-004	8.3200e-003	2.7000e-004	8.6000e-003	2.4000e-003	2.6000e-004	2.6600e-003	0.0000	32.7846	32.7846	2.4300e-003	0.0000	32.8454
Worker	0.0239	0.0170	0.1715	5.3000e-004	0.0550	3.9000e-004	0.0554	0.0146	3.6000e-004	0.0150	0.0000	48.0839	48.0839	1.3800e-003	0.0000	48.1183
Total	**0.0277**	**0.1459**	**0.2059**	**8.7000e-004**	**0.0634**	**6.6000e-004**	**0.0640**	**0.0170**	**6.2000e-004**	**0.0177**	**0.0000**	**80.8685**	**80.8685**	**3.8100e-003**	**0.0000**	**80.9637**

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	0.0108	0.0738	0.5762	8.9000e-004		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	76.4402	76.4402	0.0184	0.0000	76.9013
Total	**0.0108**	**0.0738**	**0.5762**	**8.9000e-004**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**76.4402**	**76.4402**	**0.0184**	**0.0000**	**76.9013**

3.6 Building Construction - 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	3.8800e-003	0.1289	0.0344	3.4000e-004	8.3200e-003	2.7000e-004	8.6000e-003	2.4000e-003	2.6000e-004	2.6600e-003	0.0000	32.7846	32.7846	2.4300e-003	0.0000	32.8454
Worker	0.0239	0.0170	0.1715	5.3000e-004	0.0550	3.9000e-004	0.0554	0.0146	3.6000e-004	0.0150	0.0000	48.0839	48.0839	1.3800e-003	0.0000	48.1183
Total	**0.0277**	**0.1459**	**0.2059**	**8.7000e-004**	**0.0634**	**6.6000e-004**	**0.0640**	**0.0170**	**6.2000e-004**	**0.0177**	**0.0000**	**80.8685**	**80.8685**	**3.8100e-003**	**0.0000**	**80.9637**

3.6 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	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

3.6 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	0.0142	0.4794	0.1282	1.3100e-003	0.0328	9.3000e-004	0.0337	9.4700e-003	8.8000e-004	0.0104	0.0000	127.9283	127.9283	9.2900e-003	0.0000	128.1605
Worker	0.0890	0.0611	0.6272	2.0200e-003	0.2168	1.5000e-003	0.2183	0.0576	1.3800e-003	0.0590	0.0000	182.4776	182.4776	4.9700e-003	0.0000	182.6019
Total	**0.1032**	**0.5406**	**0.7554**	**3.3300e-003**	**0.2496**	**2.4300e-003**	**0.2521**	**0.0671**	**2.2600e-003**	**0.0694**	**0.0000**	**310.4059**	**310.4059**	**0.0143**	**0.0000**	**310.7623**

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	0.0426	0.2905	2.2698	3.5000e-003		8.0000e-004	8.0000e-004		8.0000e-004	8.0000e-004	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.0426**	**0.2905**	**2.2698**	**3.5000e-003**		**8.0000e-004**	**8.0000e-004**		**8.0000e-004**	**8.0000e-004**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

3.6 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	0.0142	0.4794	0.1282	1.3100e-003	0.0328	9.3000e-004	0.0337	9.4700e-003	8.8000e-004	0.0104	0.0000	127.9283	127.9283	9.2900e-003	0.0000	128.1605
Worker	0.0890	0.0611	0.6272	2.0200e-003	0.2168	1.5000e-003	0.2183	0.0576	1.3800e-003	0.0590	0.0000	182.4776	182.4776	4.9700e-003	0.0000	182.6019
Total	**0.1032**	**0.5406**	**0.7554**	**3.3300e-003**	**0.2496**	**2.4300e-003**	**0.2521**	**0.0671**	**2.2600e-003**	**0.0694**	**0.0000**	**310.4059**	**310.4059**	**0.0143**	**0.0000**	**310.7623**

3.6 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	0.0118	0.1079	0.1218	2.0000e-004		5.2500e-003	5.2500e-003		4.9400e-003	4.9400e-003	0.0000	17.3854	17.3854	4.1400e-003	0.0000	17.4888
Total	**0.0118**	**0.1079**	**0.1218**	**2.0000e-004**		**5.2500e-003**	**5.2500e-003**		**4.9400e-003**	**4.9400e-003**	**0.0000**	**17.3854**	**17.3854**	**4.1400e-003**	**0.0000**	**17.4888**

3.6 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	6.3000e-004	0.0217	6.7300e-003	7.0000e-005	1.8900e-003	3.0000e-005	1.9200e-003	5.5000e-004	2.0000e-005	5.7000e-004	0.0000	7.1947	7.1947	4.9000e-004	0.0000	7.2069
Worker	4.8600e-003	3.2200e-003	0.0336	1.1000e-004	0.0125	8.0000e-005	0.0126	3.3200e-003	8.0000e-005	3.4000e-003	0.0000	10.1254	10.1254	2.6000e-004	0.0000	10.1320
Total	**5.4900e-003**	**0.0250**	**0.0403**	**1.8000e-004**	**0.0144**	**1.1000e-004**	**0.0145**	**3.8700e-003**	**1.0000e-004**	**3.9700e-003**	**0.0000**	**17.3201**	**17.3201**	**7.5000e-004**	**0.0000**	**17.3389**

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	2.4600e-003	0.0168	0.1310	2.0000e-004		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	17.3853	17.3853	4.1400e-003	0.0000	17.4887
Total	**2.4600e-003**	**0.0168**	**0.1310**	**2.0000e-004**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**17.3853**	**17.3853**	**4.1400e-003**	**0.0000**	**17.4887**

3.6 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	6.3000e-004	0.0217	6.7300e-003	7.0000e-005	1.8900e-003	3.0000e-005	1.9200e-003	5.5000e-004	2.0000e-005	5.7000e-004	0.0000	7.1947	7.1947	4.9000e-004	0.0000	7.2069
Worker	4.8600e-003	3.2200e-003	0.0336	1.1000e-004	0.0125	8.0000e-005	0.0126	3.3200e-003	8.0000e-005	3.4000e-003	0.0000	10.1254	10.1254	2.6000e-004	0.0000	10.1320
Total	**5.4900e-003**	**0.0250**	**0.0403**	**1.8000e-004**	**0.0144**	**1.1000e-004**	**0.0145**	**3.8700e-003**	**1.0000e-004**	**3.9700e-003**	**0.0000**	**17.3201**	**17.3201**	**7.5000e-004**	**0.0000**	**17.3389**

3.7 Architectural Coating - 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					
Archit. Coating	1.3773					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0458	0.0589	1.0000e-004		2.6600e-003	2.6600e-003		2.6600e-003	2.6600e-003	0.0000	8.2981	8.2981	5.4000e-004	0.0000	8.3116
Total	**1.3840**	**0.0458**	**0.0589**	**1.0000e-004**		**2.6600e-003**	**2.6600e-003**		**2.6600e-003**	**2.6600e-003**	**0.0000**	**8.2981**	**8.2981**	**5.4000e-004**	**0.0000**	**8.3116**

3.7 Architectural Coating - 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	4.4900e-003	3.0900e-003	0.0317	1.0000e-004	0.0110	8.0000e-005	0.0110	2.9100e-003	7.0000e-005	2.9800e-003	0.0000	9.2116	9.2116	2.5000e-004	0.0000	9.2179
Total	**4.4900e-003**	**3.0900e-003**	**0.0317**	**1.0000e-004**	**0.0110**	**8.0000e-005**	**0.0110**	**2.9100e-003**	**7.0000e-005**	**2.9800e-003**	**0.0000**	**9.2116**	**9.2116**	**2.5000e-004**	**0.0000**	**9.2179**

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	1.3773					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.7000e-004	4.1800e-003	0.0596	1.0000e-004		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.2981	8.2981	5.4000e-004	0.0000	8.3116
Total	**1.3783**	**4.1800e-003**	**0.0596**	**1.0000e-004**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.2981**	**8.2981**	**5.4000e-004**	**0.0000**	**8.3116**

3.7 Architectural Coating - 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	4.4900e-003	3.0900e-003	0.0317	1.0000e-004	0.0110	8.0000e-005	0.0110	2.9100e-003	7.0000e-005	2.9800e-003	0.0000	9.2116	9.2116	2.5000e-004	0.0000	9.2179
Total	**4.4900e-003**	**3.0900e-003**	**0.0317**	**1.0000e-004**	**0.0110**	**8.0000e-005**	**0.0110**	**2.9100e-003**	**7.0000e-005**	**2.9800e-003**	**0.0000**	**9.2116**	**9.2116**	**2.5000e-004**	**0.0000**	**9.2179**

3.7 Architectural Coating - 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					
Archit. Coating	0.2119					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.6000e-004	6.5100e-003	9.0600e-003	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	1.2766	1.2766	8.0000e-005	0.0000	1.2785
Total	**0.2129**	**6.5100e-003**	**9.0600e-003**	**1.0000e-005**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**1.2766**	**1.2766**	**8.0000e-005**	**0.0000**	**1.2785**

3.7 Architectural Coating - 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	6.5000e-004	4.3000e-004	4.5200e-003	2.0000e-005	1.6800e-003	1.0000e-005	1.7000e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.3630	1.3630	4.0000e-005	0.0000	1.3639
Total	**6.5000e-004**	**4.3000e-004**	**4.5200e-003**	**2.0000e-005**	**1.6800e-003**	**1.0000e-005**	**1.7000e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.3630**	**1.3630**	**4.0000e-005**	**0.0000**	**1.3639**

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	0.2119					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5000e-004	6.4000e-004	9.1600e-003	1.0000e-005		0.0000	0.0000		0.0000	0.0000	0.0000	1.2766	1.2766	8.0000e-005	0.0000	1.2785
Total	**0.2120**	**6.4000e-004**	**9.1600e-003**	**1.0000e-005**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2766**	**1.2766**	**8.0000e-005**	**0.0000**	**1.2785**

3.7 Architectural Coating - 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	6.5000e-004	4.3000e-004	4.5200e-003	2.0000e-005	1.6800e-003	1.0000e-005	1.7000e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.3630	1.3630	4.0000e-005	0.0000	1.3639
Total	**6.5000e-004**	**4.3000e-004**	**4.5200e-003**	**2.0000e-005**	**1.6800e-003**	**1.0000e-005**	**1.7000e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.3630**	**1.3630**	**4.0000e-005**	**0.0000**	**1.3639**

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	0.3603	1.4095	3.7924	0.0131	1.2111	0.0105	1.2216	0.3243	9.7300e-003	0.3340	0.0000	1,212.2790	1,212.2790	0.0635	0.0000	1,213.8658
Unmitigated	0.3603	1.4095	3.7924	0.0131	1.2111	0.0105	1.2216	0.3243	9.7300e-003	0.3340	0.0000	1,212.2790	1,212.2790	0.0635	0.0000	1,213.8658

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,182.00	1,182.00	1182.00	2,292,361	2,292,361
Condo/Townhouse	424.00	424.00	424.00	822,302	822,302
Parking Lot	0.00	0.00	0.00		
Quality Restaurant	84.00	84.00	84.00	99,638	99,638
Recreational Swimming Pool	0.00	0.00	0.00		
Total	1,690.00	1,690.00	1,690.00	3,214,302	3,214,302

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 Mid Rise	6.00	6.00	6.00	42.00	18.00	40.00	86	11	3
Condo/Townhouse	6.00	6.00	6.00	42.00	18.00	40.00	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Quality Restaurant	9.50	7.30	7.30	12.00	69.00	19.00	38	18	44
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Condo/Townhouse	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Parking Lot	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Quality Restaurant	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Recreational Swimming Pool	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Install Energy Efficient Appliances

Fox Point - San Diego 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	209.3443	209.3443	8.3300e-003	1.8500e-003	210.1041
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	248.8218	248.8218	9.9000e-003	2.2000e-003	249.7249
NaturalGas Mitigated	0.0153	0.1325	0.0688	8.3000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	151.3442	151.3442	2.9000e-003	2.7700e-003	152.2435
NaturalGas Unmitigated	0.0153	0.1325	0.0688	8.3000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	151.3442	151.3442	2.9000e-003	2.7700e-003	152.2435

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 Mid Rise	1.46346e+006	7.8900e-003	0.0674	0.0287	4.3000e-004		5.4500e-003	5.4500e-003		5.4500e-003	5.4500e-003	0.0000	78.0959	78.0959	1.5000e-003	1.4300e-003	78.5600
Condo/Townhouse	762291	4.1100e-003	0.0351	0.0150	2.2000e-004		2.8400e-003	2.8400e-003		2.8400e-003	2.8400e-003	0.0000	40.6788	40.6788	7.8000e-004	7.5000e-004	40.9205
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
Quality Restaurant	610330	3.2900e-003	0.0299	0.0251	1.8000e-004		2.2700e-003	2.2700e-003		2.2700e-003	2.2700e-003	0.0000	32.5695	32.5695	6.2000e-004	6.0000e-004	32.7631
Recreational Swimming Pool	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		**0.0153**	**0.1325**	**0.0688**	**8.3000e-004**		**0.0106**	**0.0106**		**0.0106**	**0.0106**	**0.0000**	**151.3442**	**151.3442**	**2.9000e-003**	**2.7800e-003**	**152.2436**

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 Mid Rise	1.46346e+006	7.8900e-003	0.0674	0.0287	4.3000e-004		5.4500e-003	5.4500e-003		5.4500e-003	5.4500e-003	0.0000	78.0959	78.0959	1.5000e-003	1.4300e-003	78.5600
Condo/Townhouse	762291	4.1100e-003	0.0351	0.0150	2.2000e-004		2.8400e-003	2.8400e-003		2.8400e-003	2.8400e-003	0.0000	40.6788	40.6788	7.8000e-004	7.5000e-004	40.9205
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
Quality Restaurant	610330	3.2900e-003	0.0299	0.0251	1.8000e-004		2.2700e-003	2.2700e-003		2.2700e-003	2.2700e-003	0.0000	32.5695	32.5695	6.2000e-004	6.0000e-004	32.7631
Recreational Swimming Pool	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		**0.0153**	**0.1325**	**0.0688**	**8.3000e-004**		**0.0106**	**0.0106**		**0.0106**	**0.0106**	**0.0000**	**151.3442**	**151.3442**	**2.9000e-003**	**2.7800e-003**	**152.2436**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	788971	161.9081	6.4400e-003	1.4300e-003	162.4958
Condo/Townhouse	266236	54.6355	2.1700e-003	4.8000e-004	54.8338
Parking Lot	21840	4.4819	1.8000e-004	4.0000e-005	4.4982
Quality Restaurant	135450	27.7963	1.1100e-003	2.5000e-004	27.8972
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Total		**248.8218**	**9.9000e-003**	**2.2000e-003**	**249.7249**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	673117	138.1331	5.5000e-003	1.2200e-003	138.6345
Condo/Townhouse	224773	46.1266	1.8400e-003	4.1000e-004	46.2940
Parking Lot	7644	1.5687	6.0000e-005	1.0000e-005	1.5744
Quality Restaurant	114592	23.5159	9.4000e-004	2.1000e-004	23.6012
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Total		**209.3443**	**8.3400e-003**	**1.8500e-003**	**210.1041**

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	1.2089	0.0214	1.8570	1.0000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	3.0351	3.0351	2.9200e-003	0.0000	3.1080
Unmitigated	1.2089	0.0214	1.8570	1.0000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	3.0351	3.0351	2.9200e-003	0.0000	3.1080

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	0.1589					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9941					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0559	0.0214	1.8570	1.0000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	3.0351	3.0351	2.9200e-003	0.0000	3.1080
Total	**1.2089**	**0.0214**	**1.8570**	**1.0000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**	**0.0000**	**3.0351**	**3.0351**	**2.9200e-003**	**0.0000**	**3.1080**

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	0.1589					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9941					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0559	0.0214	1.8570	1.0000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	3.0351	3.0351	2.9200e-003	0.0000	3.1080
Total	**1.2089**	**0.0214**	**1.8570**	**1.0000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**	**0.0000**	**3.0351**	**3.0351**	**2.9200e-003**	**0.0000**	**3.1080**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	81.5878	0.8108	0.0197	107.7370
Unmitigated	134.7455	1.0148	0.0250	167.5510

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	22.7861 / 14.3652	100.8673	0.7462	0.0184	124.9937
Condo/Townhouse	6.13028 / 3.86474	27.1369	0.2008	4.9400e-003	33.6278
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	1.88598 / 0.120382	5.9123	0.0617	1.5000e-003	7.9004
Recreational Swimming Pool	0.18899 / 0.115833	0.8291	6.1900e-003	1.5000e-004	1.0291
Total		**134.7455**	**1.0148**	**0.0250**	**167.5510**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	18.2289 / 2.54966	60.3056	0.5962	0.0145	79.5328
Condo/Townhouse	4.90422 / 0.685948	16.2243	0.1604	3.9000e-003	21.3971
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	1.50879 / 0.0213665	4.5590	0.0493	1.2000e-003	6.1489
Recreational Swimming Pool	0.151192 / 0.0205591	0.4988	4.9400e-003	1.2000e-004	0.6583
Total		**81.5878**	**0.8108**	**0.0197**	**107.7371**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	13.0371	0.7705	0.0000	32.2989
Unmitigated	26.0742	1.5409	0.0000	64.5977

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	90.62	18.3950	1.0871	0.0000	45.5729
Condo/Townhouse	24.38	4.9489	0.2925	0.0000	12.2607
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	3.19	0.6475	0.0383	0.0000	1.6043
Recreational Swimming Pool	10.26	2.0827	0.1231	0.0000	5.1598
Total		**26.0742**	**1.5409**	**0.0000**	**64.5977**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	45.31	9.1975	0.5436	0.0000	22.7865
Condo/Townhouse	12.19	2.4745	0.1462	0.0000	6.1304
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	1.595	0.3238	0.0191	0.0000	0.8021
Recreational Swimming Pool	5.13	1.0413	0.0615	0.0000	2.5799
Total		**13.0371**	**0.7705**	**0.0000**	**32.2989**

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 B

AERSCREEN Dispersion Modeling Results

TITLE: FoxPointFarms

********** AREA PARAMETERS **********

SOURCE EMISSION RATE:	0.124E-03	g/s	0.983E-03	lb/hr
AREA EMISSION RATE:	0.143E-08	g/(s-m2)	0.113E-07	lb/(hr-m2)
AREA HEIGHT:	3.00	meters	9.84	feet
AREA SOURCE LONG SIDE:	294.83	meters	967.29	feet
AREA SOURCE SHORT SIDE:	294.83	meters	967.29	feet
INITIAL VERTICAL DIMENSION:	1.00	meters	3.28	feet
RURAL OR URBAN:	URBAN			
POPULATION:	69000			
FLAGPOLE RECEPTOR HEIGHT:	1.50	meters	4.92	feet
INITIAL PROBE DISTANCE =	5000.	meters	16404.	feet

********** BUILDING DOWNWASH PARAMETERS **********

BUILDING DOWNWASH NOT USED FOR NON-POINT SOURCES

********** FLOW SECTOR ANALYSIS **********
25 meter receptor spacing: 1. meters - 5000. meters

MAXIMUM IMPACT RECEPTOR

Zo SECTOR	SURFACE ROUGHNESS	1-HR CONC (ug/m3)	RADIAL (deg)	DIST (m)	TEMPORAL PERIOD
1*	0.010	0.8437E-01	45	200.0	WIN

* = worst case diagonal

********** MAKEMET METEOROLOGY PARAMETERS **********

MIN/MAX TEMPERATURE: 250.0 / 310.0 (K)

MINIMUM WIND SPEED: 0.5 m/s

ANEMOMETER HEIGHT: 10.000 meters

SURFACE CHARACTERISTICS INPUT: AERMET SEASONAL TABLES

DOMINANT SURFACE PROFILE: Cultivated Land
DOMINANT CLIMATE TYPE: Average Moisture
DOMINANT SEASON: Winter

ALBEDO: 0.60
BOWEN RATIO: 1.50

ROUGHNESS LENGTH: 0.010 (meters)

METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT

YR	MO	DY	JDY	HR
10	01	16	16	01

H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS
-0.08	0.014	-9.000	0.020	-999.	4.	3.7	0.010	1.50	0.60	0.50

HT	REF TA	HT
10.0	310.0	2.0

METEOROLOGY CONDITIONS USED TO PREDICT AMBIENT BOUNDARY IMPACT

YR	MO	DY	JDY	HR
10	01	16	16	01

H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS
-0.08	0.014	-9.000	0.020	-999.	4.	3.7	0.010	1.50	0.60	0.50

HT	REF TA	HT
10.0	310.0	2.0

********** AERSCREEN AUTOMATED DISTANCES **********
OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE

DIST (m)	MAXIMUM 1-HR CONC (ug/m3)	DIST (m)	MAXIMUM 1-HR CONC (ug/m3)
1.00	0.5979E-01	2524.99	0.8256E-02
25.00	0.6342E-01	2550.00	0.8176E-02
50.01	0.6694E-01	2575.00	0.8097E-02
75.00	0.7025E-01	2600.00	0.8019E-02
100.00	0.7338E-01	2625.01	0.7943E-02
125.00	0.7634E-01	2650.00	0.7868E-02
150.01	0.7915E-01	2675.00	0.7794E-02
174.99	0.8182E-01	2700.00	0.7721E-02
200.00	0.8437E-01	2725.01	0.7650E-02
225.00	0.7724E-01	2749.99	0.7579E-02
250.00	0.6604E-01	2775.00	0.7509E-02
274.99	0.5898E-01	2800.00	0.7441E-02
300.00	0.5366E-01	2825.00	0.7374E-02
325.00	0.4955E-01	2849.99	0.7308E-02
350.00	0.4625E-01	2875.00	0.7243E-02
375.01	0.4348E-01	2900.00	0.7179E-02
400.00	0.4109E-01	2925.00	0.7116E-02
425.00	0.3900E-01	2950.01	0.7054E-02
450.00	0.3715E-01	2975.00	0.6993E-02
475.01	0.3550E-01	3000.00	0.6932E-02
500.00	0.3401E-01	3025.00	0.6873E-02
525.00	0.3267E-01	3050.01	0.6814E-02
550.00	0.3144E-01	3075.00	0.6757E-02

575.01	0.3032E-01	3100.00	0.6700E-02
599.99	0.2928E-01	3125.00	0.6645E-02
625.00	0.2831E-01	3150.00	0.6590E-02
650.00	0.2742E-01	3174.99	0.6536E-02
675.00	0.2658E-01	3200.00	0.6483E-02
699.99	0.2581E-01	3225.00	0.6430E-02
725.00	0.2508E-01	3250.00	0.6378E-02
750.00	0.2439E-01	3274.99	0.6327E-02
775.00	0.2374E-01	3300.00	0.6276E-02
800.01	0.2313E-01	3325.00	0.6226E-02
825.00	0.2255E-01	3350.00	0.6177E-02
850.00	0.2201E-01	3375.01	0.6129E-02
875.00	0.2149E-01	3400.00	0.6082E-02
900.01	0.2099E-01	3425.00	0.6035E-02
924.99	0.2052E-01	3450.00	0.5989E-02
950.00	0.2007E-01	3475.01	0.5943E-02
975.00	0.1964E-01	3499.99	0.5898E-02
1000.00	0.1923E-01	3525.00	0.5853E-02
1024.99	0.1884E-01	3550.00	0.5809E-02
1050.00	0.1846E-01	3575.00	0.5765E-02
1075.00	0.1810E-01	3599.99	0.5722E-02
1100.00	0.1775E-01	3625.00	0.5680E-02
1125.01	0.1742E-01	3650.00	0.5638E-02
1150.00	0.1709E-01	3675.00	0.5597E-02
1175.00	0.1679E-01	3700.01	0.5556E-02
1200.00	0.1649E-01	3725.00	0.5516E-02
1225.01	0.1620E-01	3750.00	0.5477E-02
1250.00	0.1592E-01	3775.00	0.5438E-02
1275.00	0.1564E-01	3800.01	0.5400E-02
1300.00	0.1536E-01	3825.00	0.5362E-02
1325.01	0.1510E-01	3850.00	0.5325E-02
1349.99	0.1485E-01	3875.00	0.5288E-02
1375.00	0.1461E-01	3900.00	0.5251E-02
1400.00	0.1437E-01	3924.99	0.5214E-02
1425.00	0.1414E-01	3950.00	0.5179E-02
1449.99	0.1392E-01	3975.00	0.5143E-02
1475.00	0.1371E-01	4000.00	0.5108E-02
1500.00	0.1350E-01	4024.99	0.5074E-02
1525.00	0.1330E-01	4050.00	0.5040E-02
1550.01	0.1310E-01	4075.00	0.5007E-02
1575.00	0.1291E-01	4100.00	0.4974E-02
1600.00	0.1272E-01	4125.01	0.4941E-02
1625.00	0.1255E-01	4150.00	0.4909E-02
1650.01	0.1237E-01	4175.00	0.4878E-02
1674.99	0.1220E-01	4200.00	0.4847E-02
1700.00	0.1204E-01	4225.01	0.4816E-02
1725.00	0.1188E-01	4249.99	0.4786E-02
1750.00	0.1172E-01	4275.00	0.4756E-02
1774.99	0.1157E-01	4300.00	0.4726E-02
1800.00	0.1142E-01	4325.00	0.4697E-02
1825.00	0.1127E-01	4349.99	0.4667E-02
1850.00	0.1113E-01	4375.00	0.4638E-02
1875.01	0.1099E-01	4400.00	0.4610E-02
1900.00	0.1086E-01	4425.00	0.4581E-02
1925.00	0.1072E-01	4450.01	0.4554E-02
1950.00	0.1060E-01	4475.00	0.4526E-02
1975.01	0.1047E-01	4500.00	0.4499E-02
1999.99	0.1034E-01	4525.00	0.4472E-02
2025.00	0.1022E-01	4550.01	0.4446E-02
2050.00	0.1011E-01	4575.00	0.4420E-02
2075.00	0.9991E-02	4600.00	0.4395E-02
2099.99	0.9878E-02	4625.00	0.4369E-02
2125.00	0.9767E-02	4650.00	0.4344E-02
2150.00	0.9658E-02	4674.99	0.4320E-02
2175.00	0.9551E-02	4700.00	0.4296E-02
2199.99	0.9447E-02	4725.00	0.4272E-02
2225.00	0.9345E-02	4750.00	0.4248E-02
2250.00	0.9244E-02	4774.99	0.4225E-02
2275.00	0.9146E-02	4800.00	0.4202E-02

2300.01	0.9049E-02	4825.00	0.4178E-02
2325.00	0.8955E-02	4850.00	0.4156E-02
2350.00	0.8862E-02	4875.01	0.4133E-02
2375.00	0.8771E-02	4900.00	0.4110E-02
2400.01	0.8681E-02	4925.00	0.4088E-02
2424.99	0.8593E-02	4950.00	0.4066E-02
2450.00	0.8507E-02	4975.00	0.4045E-02
2475.00	0.8422E-02	5000.00	0.4024E-02
2500.00	0.8338E-02		

********** AERSCREEN MAXIMUM IMPACT SUMMARY **********

3-hour, 8-hour, and 24-hour scaled
concentrations are equal to the 1-hour concentration as referenced in
SCREENING PROCEDURES FOR ESTIMATING THE AIR QUALITY
IMPACT OF STATIONARY SOURCES, REVISED (Section 4.5.4)
Report number EPA-454/R-92-019
http://www.epa.gov/scram001/guidance_permit.htm
under Screening Guidance

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	0.8517E-01	0.8517E-01	0.8517E-01	0.8517E-01	N/A

DISTANCE FROM SOURCE 208.00 meters

IMPACT AT THE AMBIENT BOUNDARY	0.5979E-01	0.5979E-01	0.5979E-01	0.5979E-01	N/A

DISTANCE FROM SOURCE 1.00 meters

ATTACHMENT C

Cancer Risk Calculations (Tier 4 Equipment)

Air Quality Health Risk Calculations
Fox Point Farms Multi-Family / Mixed Use (Tier 4)

From CalEE Annual Output	Emission per day (Ton/Total Construction Duration)	**0.00169**
	Number of Workdays	**429**
	Emission per day (lb/day)	**0.007878788**
	Construction day (Hours)	**8**
	Emission Rate (Grams/Second)	**0.000123927**
	Project Site Size (Acres)	**21.48**
	Project Site Size (meters	**86926.47595**
	Length of Smalles Side (meters)	**294.8329628**
	Emission Rate over Grading Area	**1.42565E-09**
	Concentration Annual	**0.0068136**

New Method based on Risk Assessment Guidelines - Guidance Manual for Preparation of Health Risk Assessments - February 2015

Page 5-1 Calculate Point of Maximum Impact and Maximally Exposed Individual Resident

1st find Dose (Equation 5.4.1.1) Page 5-24

5.4 Estimation of Dose

	Construction Days	Construction Days converted to years				
Duration	429	1.175342466				
Age (Years)	3rd Trimester (0.25)	0-2	2-9	2-16	16-30	16-70
Cair (annual) - From F15	0.0068136	0.0068136	0.0068136	0.0068136	0.0068136	0.0068136
Breathing Rate per agegroup BR/BW (Page 5-25)	361	1090	861	745	335	290
A (Default is 1)	1	1	1	1	1	1
Exposure Frequency = EF (days/365days)	0.96	0.96	0.96	0.96	0.96	0.96
10^-6 Microgram to Milligram / liters to m3	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001
Dose-inh	0.00000236	0.00000713	0.00000563	0.00000487	0.00000219	0.00000190

8.2.4 Calculating Residential Inhalation Cancer Risk

Equation 8.2.4 A Page 8-7

Construction Days	429	1.175342466				
potency factor for Diesel	1.1	1.1	1.1	1.1	1.1	1.1
Age Sensitivity Factor	10	10	3	3	1	1
ED	0.25	1.175342466	1.175342466	1.175342466	1.175342466	1.175342466
AT	70	70	70	70	70	70
FAH (USE 1 if School for 3rd and 2-9) Page 8-5	0.85	0.85	0.72	0.72	0.73	0.73
Risk for Each Age Group	7.88513E-08	1.11932E-06	2.2468E-07	1.94409E-07	2.95444E-08	2.55757E-08
	0.078851262	1.119315103	0.224679704	0.194409268	0.029544361	0.025575716

Cancer Risk Per Million 9-years	1.42
Cancer Risk Per Million 30-years	1.42
Cancer Risk Per Million 70-years	1.42

ATTACHMENT D

EMFAC 2017 Results – CO Grams/Mile

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: SAN DIEGO
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	Vehicle Miles Per Day	Trips	CO_RUNEX	CO_IDLEX	CO_STREX	CO_TOTEX
SAN DIEGO	2024	HHDT	Aggregatec	Aggregatec	GAS	16.73112283	2126.125851	334.7563056	0.074655357	0	0.001653	0.076308
SAN DIEGO	2024	HHDT	Aggregatec	Aggregatec	DSL	16331.72338	1974261.084	171699.0778	0.503127117	1.266345	0	1.769472
SAN DIEGO	2024	HHDT	Aggregatec	Aggregatec	NG	1075.495885	43785.83171	4194.43395	0.523853862	0.025811	0	0.549665
SAN DIEGO	2024	LDA	Aggregatec	Aggregatec	GAS	1492734.934	56261566.04	7054038.595	32.16889988	0	16.10168	48.27058
SAN DIEGO	2024	LDA	Aggregatec	Aggregatec	DSL	18223.09682	679768.9983	85364.73993	0.163371111	0	0	0.163371
SAN DIEGO	2024	LDA	Aggregatec	Aggregatec	ELEC	40479.14188	1747836.48	200513.127	0	0	0	0
SAN DIEGO	2024	LDT1	Aggregatec	Aggregatec	GAS	172336.6691	5946393.241	784881.7034	6.728030691	0	1.960333	8.688363
SAN DIEGO	2024	LDT1	Aggregatec	Aggregatec	DSL	96.44213643	1738.373534	315.5606754	0.00234823	0	0	0.002348
SAN DIEGO	2024	LDT1	Aggregatec	Aggregatec	ELEC	1671.992255	76193.02272	8421.027174	0	0	0	0
SAN DIEGO	2024	LDT2	Aggregatec	Aggregatec	GAS	487524.2943	17427995.23	2265657.586	14.18083116	0	6.553874	20.73471
SAN DIEGO	2024	LDT2	Aggregatec	Aggregatec	DSL	3522.523672	140774.8448	17108.65936	0.022971135	0	0	0.022971
SAN DIEGO	2024	LDT2	Aggregatec	Aggregatec	ELEC	6515.792793	211904.0926	32815.38997	0	0	0	0
SAN DIEGO	2024	LHDT1	Aggregatec	Aggregatec	GAS	34122.63668	1225429.776	508376.4439	1.133435596	0.141224	0.941336	2.215996
SAN DIEGO	2024	LHDT1	Aggregatec	Aggregatec	DSL	32930.63978	1227535.975	414226.0216	0.960180807	0.033024	0	0.993204
SAN DIEGO	2024	LHDT2	Aggregatec	Aggregatec	GAS	5491.317445	196903.0494	81812.44787	0.113147006	0.022799	0.14247	0.278415
SAN DIEGO	2024	LHDT2	Aggregatec	Aggregatec	DSL	11942.77373	450420.0655	150225.0696	0.323458399	0.011976	0	0.335435
SAN DIEGO	2024	MCY	Aggregatec	Aggregatec	GAS	80503.28481	625860.6717	161006.5696	13.84753386	0	1.533929	15.38146
SAN DIEGO	2024	MDV	Aggregatec	Aggregatec	GAS	318776.7119	11271527.3	1467171.544	9.579681708	0	4.741542	14.32122
SAN DIEGO	2024	MDV	Aggregatec	Aggregatec	DSL	8369.330829	337025.2821	40314.6415	0.078281252	0	0	0.078281
SAN DIEGO	2024	MDV	Aggregatec	Aggregatec	ELEC	3952.211144	132009.875	20079.48742	0	0	0	0
SAN DIEGO	2024	MH	Aggregatec	Aggregatec	GAS	9885.036039	85692.57639	988.8990053	0.148405224	0	0.00307	0.151475
SAN DIEGO	2024	MH	Aggregatec	Aggregatec	DSL	3878.8344	33988.34035	387.88344	0.016680982	0	0	0.016681
SAN DIEGO	2024	MHDT	Aggregatec	Aggregatec	GAS	3757.703488	218405.9653	75184.13139	0.27321599	0.059623	0.352465	0.685305
SAN DIEGO	2024	MHDT	Aggregatec	Aggregatec	DSL	20531.34079	1263348.37	195954.8267	0.159634897	0.064337	0	0.223972
SAN DIEGO	2024	OBUS	Aggregatec	Aggregatec	GAS	1234.106843	61109.53562	24692.00971	0.115910873	0.00782	0.092904	0.216634
SAN DIEGO	2024	OBUS	Aggregatec	Aggregatec	DSL	733.7534755	55937.48864	7309.912694	0.009646932	0.013295	0	0.022942
SAN DIEGO	2024	SBUS	Aggregatec	Aggregatec	GAS	317.9198729	16394.63786	1271.679492	0.043860956	0.028569	0.013935	0.086366
SAN DIEGO	2024	SBUS	Aggregatec	Aggregatec	DSL	2381.41164	74434.09823	27481.16016	0.025473945	0.014287	0	0.03976
SAN DIEGO	2024	UBUS	Aggregatec	Aggregatec	GAS	427.6812557	44934.80842	1710.725023	0.011250559	0	0.008525	0.019775
SAN DIEGO	2024	UBUS	Aggregatec	Aggregatec	DSL	0	0	0	0	0	0	0
SAN DIEGO	2024	UBUS	Aggregatec	Aggregatec	NG	1147.510975	128970.1328	4590.043899	7.305746594	0	0	7.305747

Total VMT (Mile) 101964271.3

Total CO Tons/Day 88.51363412
Total CO grams/Day 80298241.17

Total CO Gram/Mile 0.78751351

ATTACHMENT E

CALINE4 Output

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: El Camino Real/Leucadia Boulevard PM
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 300. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.1 PPM
SIGTH= 5. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. west section	-150	0	0	0	AG	1304	0.8	0.0	10.1
B. east section	-150	0	0	0	AG	1314	0.8	0.0	10.1
C. south sectio	0	-150	0	0	AG	2558	0.8	0.0	10.1
D. north sectio	0	150	0	0	AG	1192	0.8	0.0	10.1

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	15	15	1.8
2. Recpt 2	-15	15	1.8
3. Recpt 3	-15	-15	1.8
4. Recpt 4	15	-15	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D
1. Recpt 1	260.	3.3	0.1	0.1	0.0	0.0
2. Recpt 2	169.	3.3	0.0	0.0	0.1	0.0
3. Recpt 3	10.	3.3	0.0	0.0	0.0	0.1
4. Recpt 4	280.	3.3	0.1	0.1	0.1	0.0

APPENDIX D-1 BIOLOGICAL RESOURCES ASSESSMENT

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April 3, 2020

Bob Stark, AICP
Michael Baker International
5050 Avenida Encinas, Suite 260
Carlsbad, CA 92008

RE: Biological Resources Assessment for the Fox Point Farms Project

This Biological Resources Assessment letter report describes the field assessment methods, existing biological resources, biological constraints that may exist, and potential for sensitive biological resources to be present on the property proposed for the Fox Point Farms Project (Proposed Project). Regulated biological resources that may occur on the property or in adjacent areas that could be affected with implementation of the Project are discussed as consideration for resource avoidance measures, mitigation measures, Project design features, and during construction compliance measures. The purpose of this document is to inform the California Environmental Quality Act (CEQA) analyses of the Proposed Project.

PROJECT LOCATION AND PROPERTY DESCRIPTION

The property consists of 21.48 acres at 1150 Quail Gardens Drive in the City of Encinitas, California, at Assessor Parcel Number (APN) 254-612-12-00 (Figure 1 and 2). The Project Area is located north of Leucadia Boulevard, east of Sidonia Street, and west of Quail Gardens Drive in Encinitas, California. The Project Area is currently occupied by the existing Fox Point Farms flower-growing facility.

Adjacent land uses include the Magdalena Ecke County Preserve to the north, Encinitas Ranch Golf Course to the east, Quail Gardens Drive and Olivenhain Road and residential development to the south, and Sidonia Street and residential development to the west. The property is within the Carlsbad Watershed.

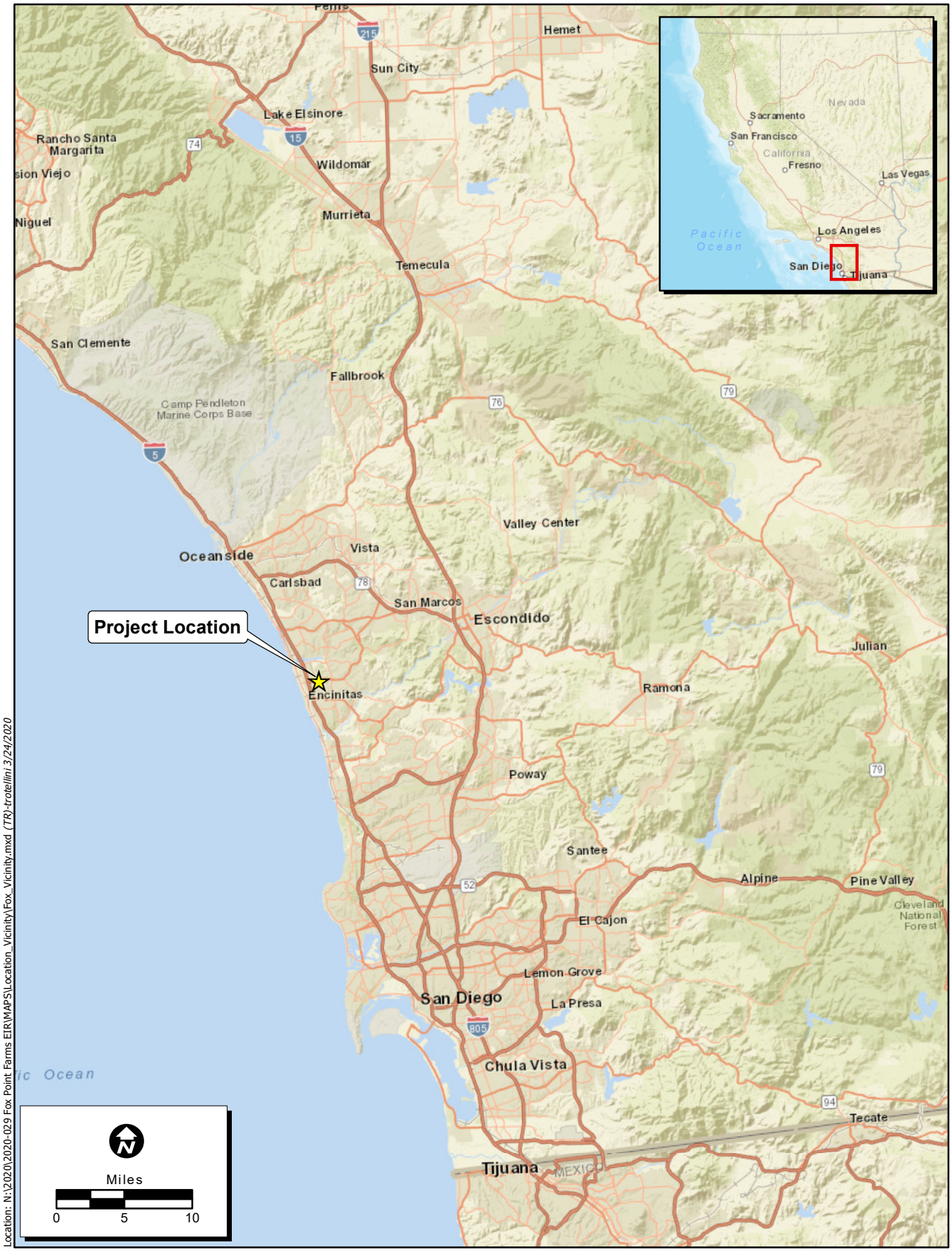
The Proposed Project, when completed, will replace the existing flower growing facilities with the mixed-use Fox Point Farms planned community that will incorporate housing and agriculture land on the approximately ±20-acre property.

Resources within Proposed Project impact areas consist solely of urban/developed and disturbed lands with ornamental landscape around the perimeter. For purposes of this report, the term "Development Area" refers to the areas directly impacted by the Proposed Project.

METHODS

Literature Review

ECORP conducted background research which included a review of standard resources such as the latest version of the California Natural Diversity Database (CNDDB) within 5 miles of the property (CNDDB;



Location: N:\2020\2020-029 Fox Point Farms EIR\MAPS\Location_Vicinity\Fox_Vicinity.mxd (TR)-trotellini 3/24/2020

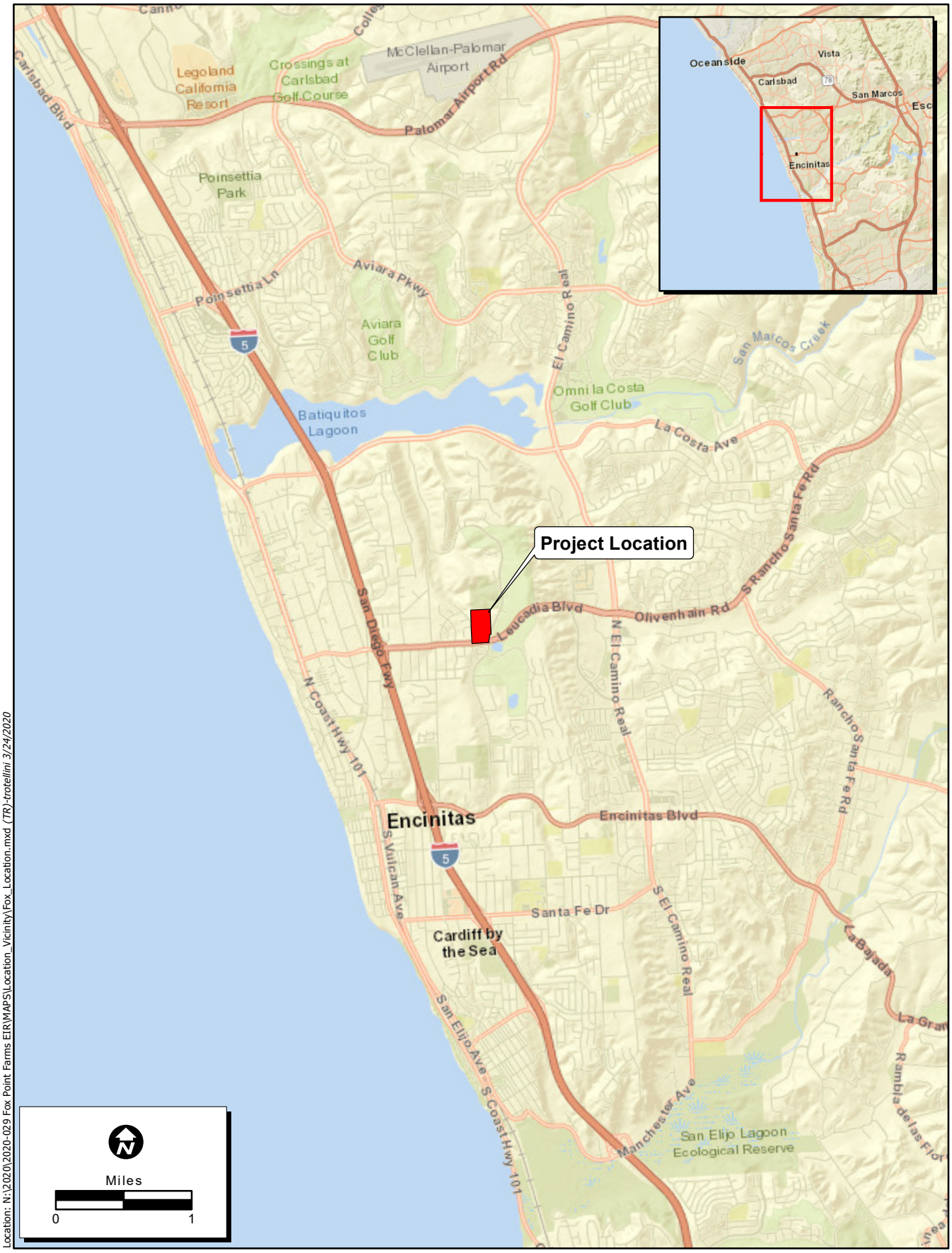
Map Date: 3/24/2020

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

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Figure 1. Project Vicinity

2020-029 Fox Point EIR Project



Location: N:\2020\2020-029 Fox Point Farms EIR\MAPS\Location_Vicinity\Fox_Location.mxd (TR)-trotellini 3/24/2020

Map Date: 3/24/2020

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

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Figure 2. Project Location

2020-029 Fox Point EIR Project

California Department of Fish and Wildlife [CDFW] 2020a), U.S. Fish and Wildlife Service (USFWS) Critical Habitat Portal and Information for Planning and Consultation (IPaC) Trust Resources List (USFWS 2020a), USFWS National Wetland Inventory (USFWS 2020b), and San Diego Geographic Information Source (SANGIS).

Using desktop review information and observations in the field, a list of special-status plant and wildlife species that have potential to occur within or adjacent to the Development Area was generated. For the purpose of this assessment, special-status species are defined as plants or wildlife that:

- have been designated as either rare, threatened, or endangered by CDFW, California Native Plant Society (CNPS), or the USFWS, and/or are protected under either the federal or California Endangered Species Acts (ESAs);
- are candidate species being considered or proposed for listing under these same acts;
- are fully protected by the California Fish and Game Code, §§ 3511, 4700, 5050, or 5515; and/or
- are of expressed concern to resource and regulatory agencies or local jurisdictions.

Potential for occurrence of special-status species were determined based on the following guidelines:

Present: The species was observed on site during a site visit or focused survey.

High: Habitat (including soils and elevation factors) for the species occurs within the Project site and a known occurrence has recently been recorded (within the last 20 years) within five miles of the area.

Moderate: Habitat (including soils and elevation factors) for the species occurs within the Project site and a documented observation occurs within the database search, but not within five miles of the area; a historic documented observation (more than 20 years old) was recorded within five miles of the Project site; or a recently documented observation occurs within five miles of the area and marginal or limited amounts of habitat occurs in the Project site.

Low: Limited or marginal habitat for the species occurs within the Project site and a recently documented observation occurs within the database search, but not within five miles of the area; a historic documented observation (more than 20 years old) was recorded within five miles of the Project site; or suitable habitat strongly associated with the species occurs on site, but no records or only historic records were found within the database search.

Presumed Absent: Species was not observed during a site visit or focused surveys conducted in accordance with protocol guidelines at an appropriate time for identification; habitat (including soils and elevation factors) does not exist on site; or the known geographic range of the species does not include the Project site.

Field Survey

On March 19, 2020, the entire property and Development Area were surveyed on foot by biologists familiar with the biological resources located in the region. Natural areas adjacent to the property were also studied. Focused, protocol-level surveys were not conducted as part of this site visit and were

determined to be unnecessary for the purposes of this analysis. Plant and wildlife species observed during the survey were recorded, and representative photographs of the property were taken. Binoculars were used to aid in bird identifications.

Vegetation mapping was conducted using resources reviewed during the literature review and aerial imagery, and ground-truthed during field surveys.

RESULTS

Habitats, Vegetation Communities, and Land Cover Types

Vegetation communities observed in and adjacent to the Development Area are described below and depicted in Figure 3 (Holland 1986; Oberbauer et al. 2008). The Development Area consists of the Urban/Developed land type. The majority of areas that are adjacent to the Development Area consist of Urban/Developed land types, however Eucalyptus Woodland, Diegan Coastal Sage Scrub, and Grassland vegetation communities occur near and adjacent to the northern boundary of the property.

Representative photographs of the habitats within or adjacent to the Development Area are included within Attachment 1.

Urban/Developed (Holland Code 12000)

The Development Area and areas adjacent to the property consist in part of urban/developed land, including project areas that will be used for access and staging. Developed areas do not constitute a vegetation classification, but rather a land cover type. Areas mapped as developed have been constructed upon or otherwise physically altered to an extent that vegetation communities are no longer supported. This land cover type is not considered to be sensitive by the City, or by state or federal agencies.

Diegan Coastal Sage Scrub (Holland Code 32500)

This plant community was observed adjacent to the Development Area and the stands had characteristic vegetation that typifies this community. Diegan coastal sage scrub is comprised of low-growing, aromatic, drought-deciduous, soft-woody shrubs. Typically, this community is found on sites with steep, dry slopes or on clay-rich soils that are slow to release stored water. This vegetation community occurs directly north of the Project site. Dominant species include California encelia (*Encelia californica*), coastal sagebrush (*Artemisia californica*), and jimson weed (*Datura wrightii*). This vegetation community has the potential to host special-status species such as the coastal California gnatcatcher.

Eucalyptus Woodland (Holland Code 79100)

Eucalyptus habitats range from single-species thickets with little or no shrubby understory to scattered trees over a well-developed herbaceous and shrubby understory. Found in coastal and foothill regions with significant access to water stores. In most cases, eucalyptus forms a dense stand with a closed canopy and produces a large amount of leaf and bark litter which limit the ability of other species to grow in the understory, decreasing floristic diversity.



Map Features

- Project Area

Vegetation Community

- Developed

Sources: SANGIS, Nolen Communities



ECORP: N:\2020\2020-029 Fox Point Farms EIR\MAPS\Vegetation_and_LandCover\FF_Veg_V1.mxd (MAG)-mguidry 4/3/2020

Map Date: 4/3/2020

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Scale in Feet
0 200

Figure 3. Vegetation Communities

2020-029 Fox Point Farms EIR

Non-native Grassland (Holland 42200)

This plant community was observed adjacent to the Development Area. Non-native grassland is a mixture of annual grasses and broad-leaved, herbaceous species. Annual species comprise from 50 percent to more than 90 percent of the vegetative cover, and most annuals are non-native species. Non-native grasses typically comprise at least 30 percent of the vegetation, although this number can be much higher in some years and lower in others, depending on land use and climatic conditions. Usually, the annual grasses are less than 1 m (3 ft) in height and form a continuous or open cover. Emergent shrubs and trees may be present, but do not comprise more than 15 percent of the total vegetative cover.

Special-status Species

The plants and wildlife observed during the field reconnaissance survey included those that are typical of the aforementioned vegetation communities. Wildlife observed included common raven (*Corvus corax*), song sparrow (*Melospiza melodia*), house finch (*Haemorhous mexicanus*), mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*), and western fence lizard (*Sceloporus occidentalis*).

Special-status plants and wildlife species reported for the region in the literature review or for which suitable habitat occurs were evaluated for their potential to occur within the Development Area or in adjacent areas where indirect impacts could occur.

Special-Status Plants

A list was generated from the results of the literature review and the Project was evaluated for suitable habitat that could support any of the special-status plant species on the list (CDFW 2020a; Attachment 2).

Special-Status Plant Species with a Potential to Occur Onsite

All special-status plant species were presumed absent from the Project site due to a lack of suitable habitat.

Special-Status Plant Species with a Potential to Occur in Adjacent Areas

The special-status plant species that were determined to have some potential to occur on land adjacent to the Development Area include: Del Mar manzanita (*Arctostaphylos glandulossa ssp. Crassifolia*; CRPR 1B.1); Encinitas baccharis (*Baccharis vanessae*; CRPR 1B.1); California adolphia (*Adolphia californica*; 2B.1); Shaw's agave (*Agave shawii var. shawii*; CRPR 2B.1); Orcutt's spineflower (*Chorizanthe orcuttiana*; CRPR 1B.1); long-spined spineflower (*Chorizanthe polygonoides var. longispina*; CRPR 1B.2); long-spined spineflower (*Chorizanthe polygonoides var. longispina*; CRPR 1B.2); Del Mar Mesa sand aster (*Corethrogyne filaginifolia var. linifolia*; CRPR 1B.1); Orcutt's hazardia (*Hazardia orcuttii*; CRPR 1B.1); Nuttall's scrub oak (*Quercus dumosa*; CRPR 1B.1); decumbent goldenbush (*Isocoma menziesii var. decumbens*; CRPR 1B.2); San Diego marsh-elder (*Iva hayesiana*; CRPR 2B.2); and, Orcutt's spineflower (*Chorizanthe orcuttiana*; CRPR 1B.1). These species could occur in the adjacent lands north of the Development Area but are unlikely to move on to the property under current land uses, or after the implementation of the Proposed Project.

Special-Status Wildlife

A list was generated from the results of the literature review and the Project was evaluated for suitable habitat that could support any of the special-status animal species on the list (CDFW 2020a; Attachment 2). It is unlikely that sensitive wildlife species that occur in the adjacent lands such as the Preserve lands are reliant or will become reliant on the resources within the Development Area under current land uses, or with the implementation of the Proposed Project.

Special-Status Wildlife Species with a Potential to Occur Onsite

All special-status wildlife species were presumed absent from the Development Area due to a lack of suitable habitat. No special-status wildlife species were observed or detected during the reconnaissance survey.

Special-Status Wildlife Species with a Potential to Occur in Adjacent Areas

One wildlife species listed as Threatened by the Fish and Wildlife Service was determined to have a high potential to occur on land adjacent to the Development Area is the coastal California gnatcatcher (*Polioptila californica californica)*. The coastal California gnatcatcher is listed as endangered and is found in coastal sage scrub, desert scrub, and coastal dune scrub habitats. This species is known to occur within the Magdalena Ecke County Preserve. Due to the close proximity of suitable habitat, it is possible that construction activities could influence activity for this species. Other species were identified as having some potential to occur or use habitat in the Preserve area, adjacent to the property and Development Area including coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*; CDFW SSC) and San Diego desert woodrat (*Neotoma lepida intermedia*; CDFW SSC) (Attachment 2).

U.S. Fish and Wildlife Service Designated Critical Habitat

The property is not located within any USFWS-designated critical habitat. Critical habitat for coastal California gnatcatcher is directly adjacent to the Project site to the north, with additional critical habitat approximately 0.40 miles east of the Project site (USFWS 2020a).

Migratory Birds and Raptors

The survey area contains ornamental, landscape trees and shrubs that could support foraging and nesting habitat for migratory bird species and, in some locations, for raptors. No long-standing nests were observed within the survey area during the reconnaissance survey; however, non-native palm, eucalyptus, and other observed tree species provide suitable habitat for raptor nesting.

Jurisdictional Wetlands and Waterways

There are no jurisdictional wetlands and/or waterways in the Project Area. There is 0.52 acres of riverine habitat approximately 0.05 miles north of the Project site, along with 0.18 acres of freshwater forested/shrub wetland approximately 0.14 miles northwest of the Project site (USFWS 2020b).

PROJECT EFFECTS

Habitats, Vegetation Communities, and Land Cover Types

Direct Effects

All disturbance and staging will occur within the property, which consists of urban/developed land and disturbed areas. No native vegetation communities or sensitive habitats will be directly affected with implementation of the Proposed Project.

The disturbance areas will be cleared of herbaceous vegetation that could support migratory birds that are protected under the California Fish and Game Code. The vegetation/habitat communities in the Development Area are not considered to be sensitive by the City, or by state or federal agencies, therefore impacts will not be significant.

Measures should be implemented to remove the potential to affect migratory bird and raptor nesting cycles within and adjacent to the property.

Indirect Effects

The Magdalena Ecke County Preserve to the north of the Proposed Project consists of mature, sensitive vegetation communities that include Southern Maritime Chaparral (Holland Code 37C30), Diegan Coastal Sage Scrub (Holland Code 32500), and Riparian Woodlands (Holland Code 62000) (County of San Diego 2009). Each of these communities are considered sensitive by CDFW and could support sensitive plant or wildlife species.

Measures should be implemented to remove the potential to affect migratory bird and raptor nesting cycles within and adjacent to the property.

Measures should be implemented to reduce the potential for short-term and long-term indirect effects to the biological resources under preservation in the adjacent Ecke Preserve.

Special-status Species

Direct Effects

It is unlikely that there will be direct effects to special-status species with the implementation of the Proposed Project.

Indirect Effects

There is potential for special-status plant and wildlife species to occur offsite, in the Preserve area.

Measures should be implemented to remove the potential for short-term and long-term indirect effects to biological resources with special status that may reside or rely on resources within the adjacent Preserve area.

Migratory Birds and Raptors

There is potential for special-status plant and wildlife species to occur offsite, in the Preserve area.

Measures should be implemented to remove the potential to affect migratory bird and raptor nesting cycles within and adjacent to the property.

Measures should be implemented to reduce the potential for short-term and long-term indirect effects to the biological resources under preservation in the adjacent Ecke Preserve.

Proposed Avoidance and Minimization Measures

The Proposed Project includes design measures that provide adequate buffer areas between residential and heavy use areas and the adjacent habitat, and thereby avoids significant impacts to natural habitats adjacent to the property.

The following compliance measures are recommended for the construction phase to avoid or otherwise minimize impacts to biological resources:

Pre-Construction General Nesting Bird Surveys and Protocols. If clearing or grubbing or other construction activity (for example, but not limited to, staging, site preparation, grading) occurs within the nesting season (January 15 to August 31), surveys for migratory bird and raptor nests should be conducted. These surveys should be performed by a qualified biologist within 72 hours before the start of vegetation removal and prior to the commencement of construction activities within 300 feet of the Preserve. Surveys should include the construction area plus a 500-foot buffer. Survey findings would be submitted to the City for review and approval prior to initiating any construction activities. If active nests are found during nesting bird survey, appropriately sized no-work buffers (generally 50 to 300 feet depending on species sensitivity) will be established around the active nests identified within and adjacent to the Project site. The qualified biologist, in consultation with the City, will determine the appropriate buffer size and level of nest monitoring necessary for species not listed under the federal ESA or the California ESA based on the species' life history, the species' sensitivity to disturbances (e.g., noise, vibration, human activity), individual behavior, status of nest, location of nest and site conditions, presence of screening vegetation, anticipated Project activities, ambient noise levels compared to Project-related noise levels, existing non-Project-related disturbances in vicinity, and ambient levels of human activity.

Buffers will be marked (flagged or fenced with Environmentally Sensitive Area fencing) around any active nests and periodic monitoring by the qualified biologist will occur to ensure the Project does not result in the failure of the nest. The buffer(s) will be maintained around each nest until the nest becomes inactive as determined by the qualified biologist. At the discretion of the qualified biologist, if a nesting bird appears to be stressed as a result of Project activities and the

buffer does not appear to provide adequate protection, additional minimization measures may need to be implemented.

Construction can continue outside of the no-work buffers. The qualified biologist will ensure that restricted activities occur outside of the delineated buffers, check nesting birds for any potential indications of stress, and ensure that installed fencing or flagging is properly maintained during nest monitoring and any additional site visits. Buffer sizes may be adjusted (either increased or reduced), or the extent of nest monitoring may be adjusted, at the discretion of the qualified biologist based on the conditions of the surrounding area and/or the behavior of the nesting bird. Any changes to buffer sizes and/or nest monitoring frequency will be documented.

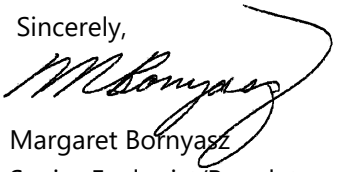
Pre-Construction Coastal California Gnatcatcher Surveys and Protocols. If clearing or grubbing or other construction activity must occur within the nesting season (February 15 to August 31) measures will need to be implemented to address potential construction-period impacts to the coastal California gnatcatcher that may occupy native habitats adjacent to the construction area. Prior to the initiation of construction activities within 500 feet of habitat that could support gnatcatchers, a biologist with necessary permits to conduct surveys should perform a minimum of three focused surveys, on separate days, to determine the presence and activities of gnatcatchers within a minimum of 500 feet of Project construction activity proposed during the gnatcatcher breeding season. The surveys will begin a maximum of 7 days prior to vegetation crushing/trampling or Project construction and one survey will be conducted the day immediately prior to the initiation of work. If a gnatcatcher nest is found in or within 300 feet of initial vegetation disturbance or Project construction, additional coordination will need to occur with the USFWS within 48 hours of the discovery to determine what additional measures would need to be implemented, if any, to avoid "take". Similar protocols for other federal ESA or the California ESA bird species may need to be implemented, based on finding of biological surveys.

Significance of Project Effects

With appropriate design and compliance measures implemented to avoid impacts to migratory birds, the Project will not have significant direct effects on biological resources.

With appropriate design and compliance measures implemented to avoid impacts to preserved and protected biological resources that may occur on or adjacent to the Development Area, the Project can reduce potential effects to sensitive plant communities and sensitive biological resources to less that significant levels.

Sincerely,



Margaret Bornyasz
Senior Ecologist/Regulatory Specialist

ECORP CONSULTING, INC.

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APPENDIX A

Site Survey Photos



Photo 1: Coastal sage scrub habitat adjacent to northeastern portion of Project site, facing north



Photo 2: Vegetation adjacent to northeastern portion of Project site, facing northwest



Photo 3: Vegetation adjacent to northern portion of Project site, facing northeast.



Photo 4: Adjacent vegetation along northern portion of site, facing north.



Photo 5: Western boundary portion of site, facing north.



Photo 6: Southern portion of Project site, facing east.

ATTACHMENT 2

Potential for Occurrence Tables

Potential for Occurrence Table: Special Status Plants		
Species	**Status**	**Potential for Occurrence**
Acanthomintha ilicifolia San Diego thorn-mint	1B.1	Presumed absent from within and adjacent to the project site
Acmispon prostratus Nuttall's acmispon	1B.1	Presumed absent from within and adjacent to the project site
Adolphia californica California adolphia	2B.1	Presumed absent from within the project site, moderate potential to occur in adjacent coastal sage scrub/chaparral habitat
Agave shawii var. shawii Shaw's agave	2B.1	Presumed absent from within the project site, moderate potential to occur in adjacent coastal sage scrub/chaparral habitat
Arctostaphylos glandulosa ssp. crassifolia Del Mar manzanita	1B.1	Presumed absent from within the project site, moderate potential to occur in adjacent coastal sage scrub/chaparral habitat
Artemisia palmeri San Diego sagewort	4.2	Presumed absent from within and adjacent to the project site
Atriplex coulteri Coulter's saltbush	1B.2	Presumed absent from within and adjacent to the project site
Atriplex pacifica south coast saltscale	1B.2	Presumed absent from within and adjacent to the project site
Baccharis vanessae Encinitas baccharis	1B.1	Presumed absent from within the project site, high potential to occur in adjacent coastal sage scrub habitat
Bloomeria clevelandii San Diego goldenstar	1B.1	Presumed absent from within and adjacent to the project site
Brodiaea filifolia thread-leaved brodiaea	1B.1	Presumed absent from within and adjacent to the project site
Brodiaea orcuttii Orcutt's brodiaea	1B.1	Presumed absent from within and adjacent to the project site
Ceanothus verrucosus wart-stemmed ceanothus	2B.2	Presumed absent from within and adjacent to the project site
Chaenactis glabriuscula var. orcuttiana Orcutt's pincushion	1B.1	Presumed absent from within and adjacent to the project site
Chorizanthe orcuttiana Orcutt's spineflower	1B.1	Presumed absent from within and adjacent to the project site

Chorizanthe polygonoides var. longispina long-spined spineflower	1B.2	Presumed absent from within the project site, moderate potential to occur in adjacent coastal sage scrub/chaparral habitat
Comarostaphylis diversifolia ssp. diversifolia summer holly	1B.2	Presumed absent from within and adjacent to the project site
Corethrogyne filaginifolia var. linifolia Del Mar Mesa sand aster	1B.1	Presumed absent from within the project site, moderate potential to occur in adjacent coastal sage scrub/chaparral habitat
Cryptantha wigginsii Wiggins' cryptantha	1B.2	Presumed absent from within and adjacent to the project site
Dudleya blochmaniae ssp. blochmaniae Blochman's dudleya	1B.1	Presumed absent from within and adjacent to the project site
Dudleya viscida sticky dudleya	1B.2	Presumed absent from within and adjacent to the project site
Ericameria palmeri var. palmeri Palmer's goldenbush	1B.1	Presumed absent from within and adjacent to the project site
Eryngium aristulatum var. parishii San Diego button-celery	1B.1	Presumed absent from within and adjacent to the project site
Erysimum ammophilum sand-loving wallflower	1B.2	Presumed absent from within and adjacent to the project site
Euphorbia misera cliff spurge	2B.2	Presumed absent from within and adjacent to the project site
Ferocactus viridescens San Diego barrel cactus	2B.1	Presumed absent from within and adjacent to the project site
Harpagonella palmeri Palmer's grapplinghook	4.2	Presumed absent from within and adjacent to the project site
Hazardia orcuttii Orcutt's hazardia	1B.1	Presumed absent from within the project site, low potential to occur in adjacent coastal sage scrub/chaparral habitat
Heterotheca sessiliflora ssp. sessiliflora beach goldenaster	1B.1	Presumed absent from within and adjacent to the project site
Isocoma menziesii var. decumbens decumbent goldenbush	1B.2	Presumed absent from within the project site, low potential to occur in adjacent coastal sage scrub/chaparral habitat
Iva hayesiana San Diego marsh-elder	2B.2	Presumed absent from within the project site, low potential to occur in adjacent coastal sage scrub/chaparral habitat
Lasthenia glabrata ssp. coulteri Coulter's goldfields	1B.1	Presumed absent from within and adjacent to the project site

Leptosyne maritima sea dahlia	2B.2	Presumed absent from within and adjacent to the project site
Myosurus minimus ssp. apus little mousetail	3.1	Presumed absent from within and adjacent to the project site
Navarretia fossalis spreading navarretia	1B.1	Presumed absent from within and adjacent to the project site
Nemacaulis denudata var. denudata coast woolly-heads	1B.2	Presumed absent from within and adjacent to the project site
Orcuttia californica California Orcutt grass	1B.1	Presumed absent from within and adjacent to the project site
Orobanche parishii ssp. brachyloba short-lobed broomrape	4.2	Presumed absent from within and adjacent to the project site
Quercus dumosa Nuttall's scrub oak	1B.1	Presumed absent from within the project site, low potential to occur in adjacent coastal sage scrub/chaparral habitat
Suaeda esteroa estuary seablite	1B.2	Presumed absent from within and adjacent to the project site

List Designation	Meaning
1A	Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
1B	Plants Rare, Threatened, or Endangered in California and Elsewhere
2A	Plants Presumed Extirpated in California, But Common Elsewhere
2B	Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3	Plants about which we need more information; a review list
4	Plants of limited distribution; a watch list
List 1B, 2, and 4 extension meanings:	
.1	Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2	Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

Note: According to CNPS (Skinner and Pavlik 1994), plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California FGC (CDFW 1984). This interpretation is inconsistent with other definitions.

Potential for Occurrence Table: Special Status Wildlife		
Species	**Status**	**Potential for Occurrence**
Spea hammondii western spadefoot	CDFW SSC	Presumed absent from within and adjacent to the project site
Passerculus sandwichensis beldingi Belding's savannah sparrow	State-listed endangered	Presumed absent from within and adjacent to the project site
Laterallus jamaicensis coturniculus California black rail	State-listed threatened	Presumed absent from within and adjacent to the project site
Sternula antillarum browni California least tern	Federally-listed endangered, State-listed endangered	Presumed absent from within and adjacent to the project site
Campylorhynchus brunneicapillus sandiegensis coastal cactus wren	CDFW SSC	Presumed absent from within the project site, moderate potential to occur in adjacent coastal sage scrub/chaparral habitat
Polioptila californica californica coastal California gnatcatcher	Federally-listed threatened, CDFW SSC	Presumed absent from within the project site, high potential to occur in adjacent coastal sage scrub/chaparral habitat
Vireo bellii pusillus least Bell's vireo	Federally-listed endangered, State-listed endangered	Presumed absent from within and adjacent to the project site
Rallus obsoletus levipes light-footed Ridgway's rail	Federally-listed endangered, State-listed endangered	Presumed absent from within and adjacent to the project site
Agelaius tricolor tricolored blackbird	State-listed threatened, CDFW SSC	Presumed absent from within and adjacent to the project site
Charadrius alexandrinus nivosus western snowy plover	Federally-listed threatened, CDFW SSC	Presumed absent from within and adjacent to the project site
Streptocephalus woottoni Riverside fairy shrimp	Federally-listed endangered	Presumed absent from within and adjacent to the project site
Branchinecta sandiegonensis San Diego fairy shrimp	Federally-listed endangered	Presumed absent from within and adjacent to the project site
Chaetodipus californicus femoralis Dulzura pocket mouse	CDFW SSC	Presumed absent from within and adjacent to the project site
Choeronycteris Mexicana Mexican long-tongued bat	CDFW SSC	Presumed absent from within and adjacent to the project site
Chaetodipus fallax fallax northwestern San Diego pocket mouse	CDFW SSC	Presumed absent from within and adjacent to the project site
Perognathus longimembris pacificus Pacific pocket mouse	Federally-listed endangered, CDFW SSC	Presumed absent from within and adjacent to the project site
Nyctinomops femorosaccus pocketed free-tailed bat	CDFW SSC	Presumed absent from within and adjacent to the project site

Lepus californicus bennettii San Diego black-tailed jackrabbit	CDFW SSC	Presumed absent from within and adjacent to the project site
Neotoma lepida intermedia San Diego desert woodrat	CDFW SSC	Presumed absent from within the project site, moderate potential to occur in adjacent coastal sage scrub/chaparral habitat
Arizona elegans occidentalis California glossy snake	CDFW SSC	Presumed absent from within and adjacent to the project site
Phrynosoma blainvillii coast horned lizard	CDFW SSC	Presumed absent from within and adjacent to the project site
Aspidoscelis tigris stejnegeri coastal whiptail	CDFW SSC	Presumed absent from within and adjacent to the project site
Anniella stebbinsi southern California legless lizard	CDFW SSC	Presumed absent from within and adjacent to the project site
Thamnophis hammondii two-striped gartersnake	CDFW SSC	Presumed absent from within and adjacent to the project site

SSC- Species of Special Concern

APPENDIX D-2 TREE SURVEY

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Fox Point Farms
Encinitas, CA

Tree Survey For
Nolen Communities



February 27, 2020

Prepared By:
Devon Boutte, ISA Certified Arborist WE-7383AU

SCHMIDT DESIGN GROUP

CERTIFIED ARBORIST ISA

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ASSIGNMENT

An assignment has been requested to provide a tree survey and assessment for Fox Point Farms in Encinitas, CA.

SITE EVALUATION

A tree inspection was conducted on January 23, 2020. The trees were inspected and data was collected that includes: tree identification number, botanical name, common name, height in feet, canopy spread in feet, the diameter of tree trunk at breast height (DBH) in inches, tree condition and any relevant additional findings. All inspections are limited to visual examination procedures, unless otherwise noted in the report. The tree condition data is based on the health, structure and form and recorded with a rating range between 0-5, where 0 is the poorest condition and 5 is the best condition rating.

The attached *Guide for Judging the Condition of Landscape Trees* is the current arboricultural industry standard.

GENERAL OBSERVATIONS

The project is located at 1150 Quail Gardens DR., Encinitas, CA 92024. The tree composition varies with an evergreen and deciduous tree population. Some trees receive water from the irrigation system while some trees are located in areas where the irrigation system is non-functioning.

NOTES

Narrow crotch branching in trees and narrow crotch multiple trunk attachments near ground level are structurally unsound. They are known to split away, collapsing causing property damage, injury and death.

All pruning should be to industry established standards of the American National Standards Institute (ANSI) A300 Pruning guidelines exclusively.

TREE INVENTORY LIST

ID	Botanic Name	Common Name	Height ft	Canopy Spread Ft.	DBH Inches	Condition	Notes
1	Eucalyptus globulus	Blue Gum	45	45	36	5	
2	Acacia spp.	Wattle and myoporum	12	20	12	5	
3	Eucalyptus spp.	Gum Tree	28	12	7	5	two trunks
4	Eucalyptus spp.	Gum Tree	25	15	7	3	
5	Eucalyptus cinerea	Silver Doller Gum	25	15	13	5	
6	Eucalyptus spp.	Gum Tree	65	50	13	5	
7	Eucalyptus spp., Eucalyptus sideroxylon, and Eucalyptus globulus	Red Iron Bark and Blue Gum	65	50	13	5	8 Gum Trees 12 inch and greater dbh.
8	Eucalyptus spp., Eucalyptus sideroxylon and Eucalyptus globulus	Red Iron Bark and Blue Gum	65	50	12	5	12 Gum Trees, 8-12 inch dbh.
9	Eucalyptus sideroxylon	Red Iron Bark	40	45	28	5	
10	Eucalyptus globulus	Blue Gum	40	45	22	5	
11	Eucalyptus spp.	Gum Tree	20	20	9	3	
12	Syagrus romanzoffiana	Queen palm	25	20	8	5	
13	Syagrus romanzoffiana	Queen palm	25	20	8	5	
14	Syagrus romanzoffiana	Queen palm	25	20	8	5	
15	Jacaranda mimosifolia	Jacaranda	12	12	6	3	
16	Brahea armata	Blue Hesper Palm	10	10	14	5	
17	Brahea armata	Blue Hesper Palm	10	10	14	5	
18	Brahea edulis	Guadalupe Fan Palm	20	8	14	5	
19	Brahea edulis	Guadalupe Fan Palm	20	8	12	5	
20	Ulmus parvifolia	Chinese Elm	20	50	20	5	
21	Syagrus romanzoffiana	Queen Palm	25	20	8	5	
22	Archontophoenix cunninghamiana	Kingpalm	18	10	4	5	

23	Archontophoenix cunninghamiana	Kingpalm	18	10	4	5	
24	Archontophoenix cunninghamiana	Kingpalm	18	10	4	5	
25	Brahea edulis	Guadalupe Fan Palm	20	8	14	5	
26	Annona cherimola	Cherimoya	15	40	40	4	4 trunks
27	Pinus thunbergii	Black Pine	20	30	17	4	
28	Pinus thunbergii	Black Pine	20	30	17	4	
29	Pinus thunbergii	Black Pine	15	30	17	4	
30	Pinus thunbergii	Black Pine	20	30	12	4	
31	Eucalyptus citriodora	Lemon Scented Gum	45	50	16	5	
32	Eucalyptus nicholii	Narrow-Leaved Black Peppermint	20	30	7	5	
33	Pinus thunbergii	Black Pine	12	15	12	4	
34	Pinus thunbergii	Black Pine	12	15	16	4	
35	Pinus thunbergii	Black Pine	12	15	16	4	
36	Pinus thunbergii	Black Pine	20	25	18	4	
37	Pinus thunbergii	Black Pine	18	15	12	4	
38	Pinus thunbergii	Black Pine	18	15	12	4	
39	Cupaniopsis anacardioides	Carrot Wood	20	20	8	5	
40	Cupaniopsis anacardioides	Carrot Wood	20	20	4	5	
41	Cupaniopsis anacardioides	Carrot Wood	20	20	8	5	
42	Koelreuteria bipinnata	Chinese Flame Tree	20	20	8	5	
43	Koelreuteria bipinnata	Chinese Flame Tree	20	20	8	5	
44	Koelreuteria bipinnata	Chinese Flame Tree	20	20	8	5	
45	Koelreuteria bipinnata	Chinese Flame Tree	20	20	8	5	
46	Koelreuteria bipinnata	Chinese Flame Tree	20	20	8	5	
47	Cupaniopsis anacardioides	Carrot Wood	20	20	8	5	
48	Cupaniopsis anacardioides	Carrot Wood	20	20	8	5	
49	Pinus thunbergii	Black Pine	18	15	12	4	
50	Pinus thunbergii	Black Pine	20	15	22	5	

51	Pinus thunbergii	Black Pine	20	15	13	5	
52	Eucalyptus citriodora	Lemon Scented Gum	30	40	15	5	
53	Archontophoenix cunninghamiana	King Palm	15	15	7	5	
54	Archontophoenix cunninghamiana	King Palm	15	15	7	5	
55	Phoenix roebelenii	Pygmy Date Palm	7	8	7	5	
56	Pinus thunbergii	Black Pine	18	15	20	5	
57	Pinus thunbergii	Black Pine	18	15	20	5	
58	Pinus thunbergii	Black Pine	12	8	7	3	
59	Eucalyptus spp.	Gum Tree	30	25	20	5	
60	Eucalyptus spp.	Gum Tree	20	25	8	4	
61	Eucalyptus spp.	Gum Tree	25	25	8	4	
62	Eucalyptus spp.	Gum Tree	25	25	13	4	
63	Eucalyptus spp.	Gum Tree	25	25	12	4	
64	Eucalyptus spp.	Gum Tree	25	25	16	4	
65	Eucalyptus spp.	Gum Tree	25	25	22	4	
66	Livistona australis	Cabbage Tree Palm	20	14	12	5	
67	Pinus thunbergii	Black Pine	12	12	8	4	
68	Eucalyptus spp.	Gum Tree	25	25	10	4	
69	Eucalyptus spp.	Gum Tree	25	25	10	4	
70	Eucalyptus globulus	Blue Gum	40	45	36	4	

GUIDE FOR JUDGING THE CONDITION OF LANDSCAPE TREES

Adapted from the Guide for Plant Appraisal, 8th, 9th, and 10th Editions and Field Report Guide for Trunk Formula and Replacement Cost Methods, 2000

Rating	Health = H	Structure = S	Form = F	% Rating	Condition Scoring System	Points
Excellent	High vigor and near perfect health with little or no twig dieback, discoloration or defoliation. Applicable to small diameter plants that are well established	Nearly ideal and free of defects	Nearly ideal for the Species. Generally symmetric. Consistent with the intended use.	81% - 100%	No Problems	4.0 - 5.0
Good	Vigor is normal for the species. No significant damage due to diseases or pests. Any Twig dieback, defoliation or discoloration is minor.	Well- developed structure. Defects are minor and can be corrected.	Minor asymmetries/ deviations from species norm. Mostly consistent with the intended use. Function & Aesthetics are not compromised.	61% - 80%	Very minor problems	3.0 - 4.0
Fair	Reduced vigor. Damage due to insects or diseases may be significant & associated with defoliation but is not likely to be fatal. Twig dieback, defoliation, discoloration &/or dead branches may comprise up to 50% of the crown.	A single defect of significant nature or multiple moderate defects. Defects are not practical to correct or would require multiple treatments over several years.	Major asymmetries/ deviations from species norm and/or intended use. Function & aesthetics are compromised.	41% - 60%	Minor problems	2.0 - 3.0
Poor	Unhealthy and declining in appearance. Poor vigor. Low foliage density and poor foliage color are present. Potentially fatal pest infestations. Extensive twig &/or branch dieback.	A single serious defect or multiple significant defects. Recent change in tree orientation. Observed structural problems cannot be corrected. Failure may occur at any time.	Largely asymmetrical/ abnormal. Detracts from function and aesthetics to a significant degree.	21% - 40%	Major problems	1.0 - 2.0
Very Poor	Poor vigor. Appears to be dying and in the last stages of life. Little live foliage	Single or multiple severe defects. Failure is probable or imminent.	Visually unappealing. Provides little to no function in the landscape.	6% - 20%	Extreme problems	0.6 - 1.0
Dead				0% - 5%		0.0 - 0.5

TERMINOLOGY

Adventitious roots – Root tissue that develops from newly organized meristems; sometimes associated with fill and stem decay
Aerial inspection - An examination of the trunk and branches in the upper portions of the tree, to determine stability, presence of disease, decay, etc.
Branch taper – Relative change in diameter with length; reflects ability of stem or branch to evenly distribute stress along its length
Canopy – The live foliage bearing part of the tree.
Cavity – An open wound, characterized by the presence of extensive decay and resulting in a hollow.
Chlorosis – Yellowing of leaves or needles caused usually by iron deficiency or other mineral deficiencies.
Codominant – Equal in size and relative importance, usually associated with scaffold limbs in the crown.
Crack – Longitudinal split in the stem, involving bark, cambium and xylem; may be vertically and horizontally oriented.
DBH – Diameter of the trunk, measured at breast height (54" above the ground). If the tree has multiple trunks, measurements were taken at the narrowest point between the ground and the divisions of the trunks.
Decay – Process of degradation of woody tissues by fungi and bacteria through decomposition of cellulose and lignin.
Die Back – Death of shoots and branches, generally from tip to base.
Drip Line – The width of the crown, as measured by the lateral extent of the foliage.
Embedded/Included Bark – Pattern of development at branch junctions where bark is turned inward rather than pushed out (same as Included Bark).
Lateral – A side branch or twig.
Root Collar – Area at the base of the tree where roots and stem merge (same as Root Crown).
Root Crown Inspections – Extensive examination of the junction of the root and stem, and the area below, aimed at determining stability, presence of disease, decay, etc.
Scaffold – Primary structure branch of the crown.
Scars or Injuries – Natural or man-made lesions of the bark in which wood is exposed.
Structural Defect – Internal or external points of weakness which reduce the stability of the tree.

TERMS OF ASSIGNMENT

The following terms and conditions apply to all oral and written reports and correspondence pertaining the consultations, inspections, and activities of Schmidt Design Group, Inc.

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2. It is assumed that any property referred to in any report or in conjunction with any services performed by Schmidt Design Group Inc. is not in violation of any applicable codes, ordinances, statutes, or other governmental regulations, and that any titles and ownership to any property are assumed to be good and marketable. Any existing liens and encumbrances have been disregarded.
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I certify that the statements of fact in this letter are true and complete and correct to the best of my knowledge. All information hereby stated or implied is made in good faith.



Devon Boutte
Certified Arborist # WE-7383AU
Schmidt Design Group, Inc.



MATCHLINE SHEET 2

NORTH

0 50 100 200

SCALE : 1" = 100'-0"

SCHMIDT DESIGN GROUP

FOX POINT FARMS
PRE-SCHEMATIC ASSESSMENT

APPENDIX A - TREE INVENTORY SITE MAP

MATCHLINE SHEET 1



SCHMIDT DESIGN GROUP

FOX POINT FARMS
PRE-SCHEMATIC ASSESSMENT

APPENDIX A - TREE INVENTORY SITE MAP

APPENDIX E CULTURAL RESOURCES INVENTORY AND EVALUATION REPORT

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Cultural Resources Inventory and Evaluation Report

Fox Point Farms

San Diego County, California

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Under the Direction of Principal Investigator:

John O'Connor, Ph.D., RPA

April 2020

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

MANAGEMENT SUMMARY

In 2020, ECORP Consulting, Inc. was retained to conduct a cultural resources inventory and historic building evaluation for the proposed Fox Point Farms Project (Project) in the City of Encinitas, San Diego County, California. Nolen Communities proposes to redevelop the existing industrial property into a mixed-use housing and agricultural community. A historic-period building, single family residence, has been relocated to the property in the mid-1900s, thus necessitating the historic building evaluation.

The inventory included a records search, literature review, and field survey. A records search of the California Historical Resources Information System at the South Coastal Information Center revealed that 64 cultural resources investigations had previously been conducted in or within one mile of the Project Area. Twenty-one cultural resources were previously recorded within one mile of the Project Area as a result of these investigations. However, no cultural resources have been previously identified within the Project Area itself. A search of the Sacred Lands File was completed by the California Native American Heritage Commission and resulted in a negative finding, meaning that no Native American Sacred Lands have been recorded in the Project Area.

As a result of the field survey, two cultural resources were recorded: FP-001, a historic-period residence located at the southwestern corner of the Project Area; and FP-002, historic-period road, a segment of Leucadia Boulevard, previously Woodley Road, that forms the southern boundary of the Project Area. ECORP used archival research to evaluate the two historic-period resources using National Register of Historic Places and California Register of Historical Resources eligibility criteria and found both resources not eligible. Recommendations for the management of unanticipated discoveries are provided.

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Attachment A – Records Search Confirmation and Historical Society Coordination
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Attachment D – ***CONFIDENTIAL*** Cultural Resource Site Locations and Site Records

LIST OF ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
APE	Area of Potential Effects
APN	Assessor Parcel Number
BLM	Bureau of Land Management
BP	Before present
Caltrans	California Department of Transportation
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
City	City of Encinitas
CRHR	California Register of Historical Resources
CHRIS	California Historical Resources Information System
GLO	General Land Office
Ma	Million Years Ago
MLD	Most Likely Descendant
NAHC	Native American Heritage Commission
NHPA	National Historic Preservation Act
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OHP	Office of Historic Preservation
Project	Fox Point Farms Project
PRC	Public Resources Code
RPA	Registered Professional Archaeologist
SCCIC	South Coastal Information Center
USC	U.S. Code
USGS	U.S. Geological Survey

1.0 INTRODUCTION

In 2020, ECORP Consulting, Inc. was retained by Michael Baker International to conduct a cultural resources inventory of the proposed Fox Point Farms Project (Project) Area located at 1150 Quail Gardens Drive in the City of Encinitas, San Diego County, California (Figure 1). A survey of the property was required to identify potentially eligible cultural resources (archaeological sites and historic buildings, structures, and objects) that could be affected by the Project. The City is the Lead Agency for the Project. The historic-period building, located in the Project Area, was evaluated using the eligibility criteria of the California Register of Historical Resources (CRHR).

1.1 Project Location

The Project Area consists of 21.48 acres of property located in Section 3 of Township 13 South, Range 4 West, San Bernardino Base and Meridian as depicted on the 1997 Encinitas, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map (Figure 2). It is also known as Assessor Parcel Number (APN) 254-612-12-00. The Project Area is located north of Leucadia Boulevard, east of Sidonia Street, and west of Quail Gardens Drive in Encinitas, California. The Project Area is currently occupied by the existing Fox Point Farms flower-growing facility.

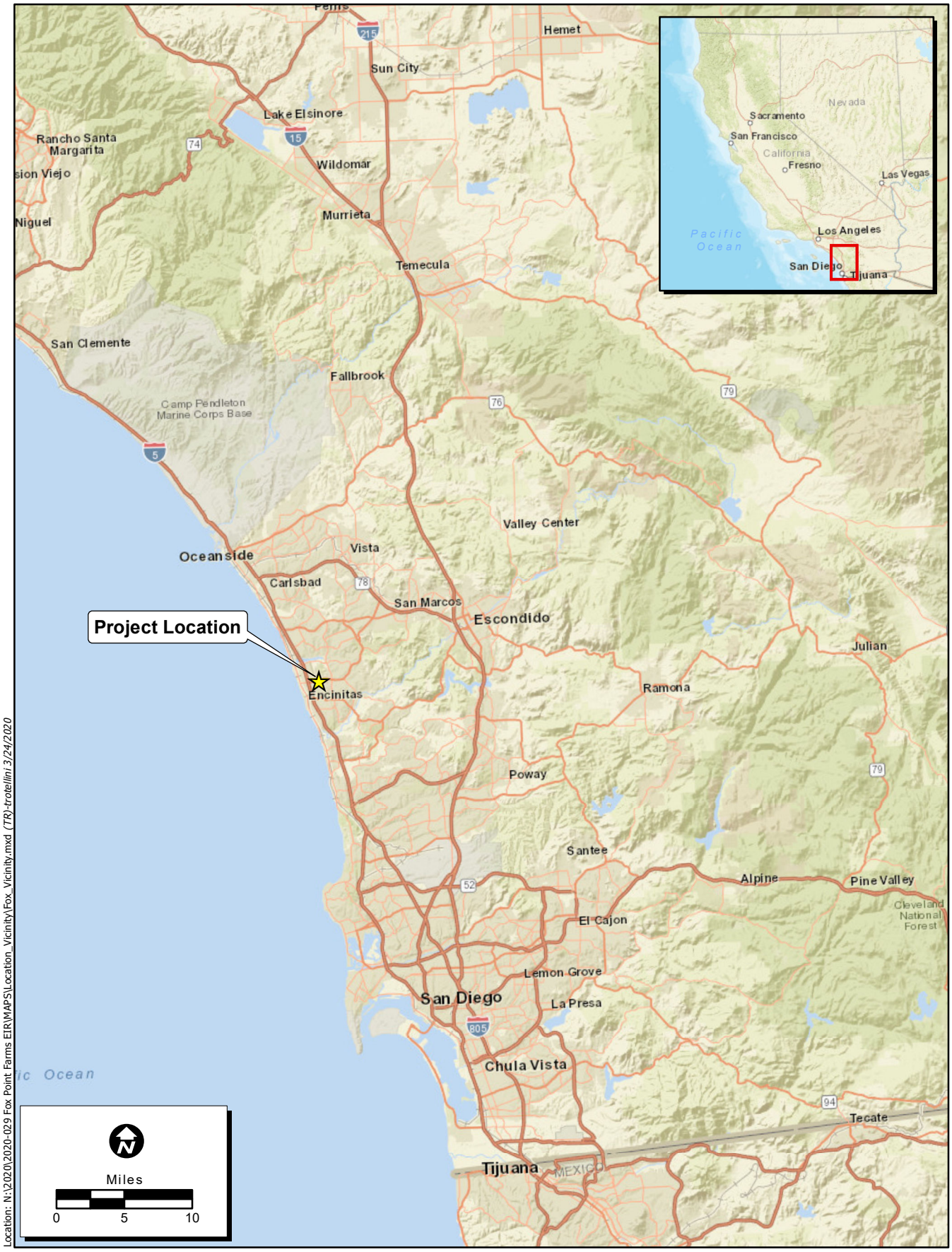
1.2 Project Description

The proposed Project, when completed, will replace the existing Fox Point Farms flower-growing facilities with the mixed-use Fox Point Farms planned community, which will incorporate housing and agriculture land on the 21.48-acre property.

1.3 Area of Potential Effects

The Area of Potential Effects (APE) consists of the horizontal and vertical limits of the project and includes the area within which significant impacts or adverse effects to Historical Resources or Historic Properties could occur as a result of the project. The APE is defined for projects subject to regulations implementing Section 106 (federal law and regulations). For projects subject to the California Environmental Quality Act (CEQA), the term Project Area is used rather than APE. For the purpose of this document, the terms Project Area and APE are interchangeable.

The horizontal APE consists of all areas where activities associated with the Project are proposed and in the case of the current project, equals the project area subject to environmental review under the National Environmental Policy Act and CEQA. This includes areas proposed for construction, vegetation removal, grading, trenching, stockpiling, staging, paving, and other elements described in the official Project description. The horizontal APE is illustrated in Figure 1 and also represents the survey coverage area. It measures approximately 1,280 feet in length by 740 feet in width.



Location: N:\2020\2020-029 Fox Point Farms EIR\MAPS\Location_Vicinity\Fox_Vicinity.mxd (TR)-trotellini 3/24/2020

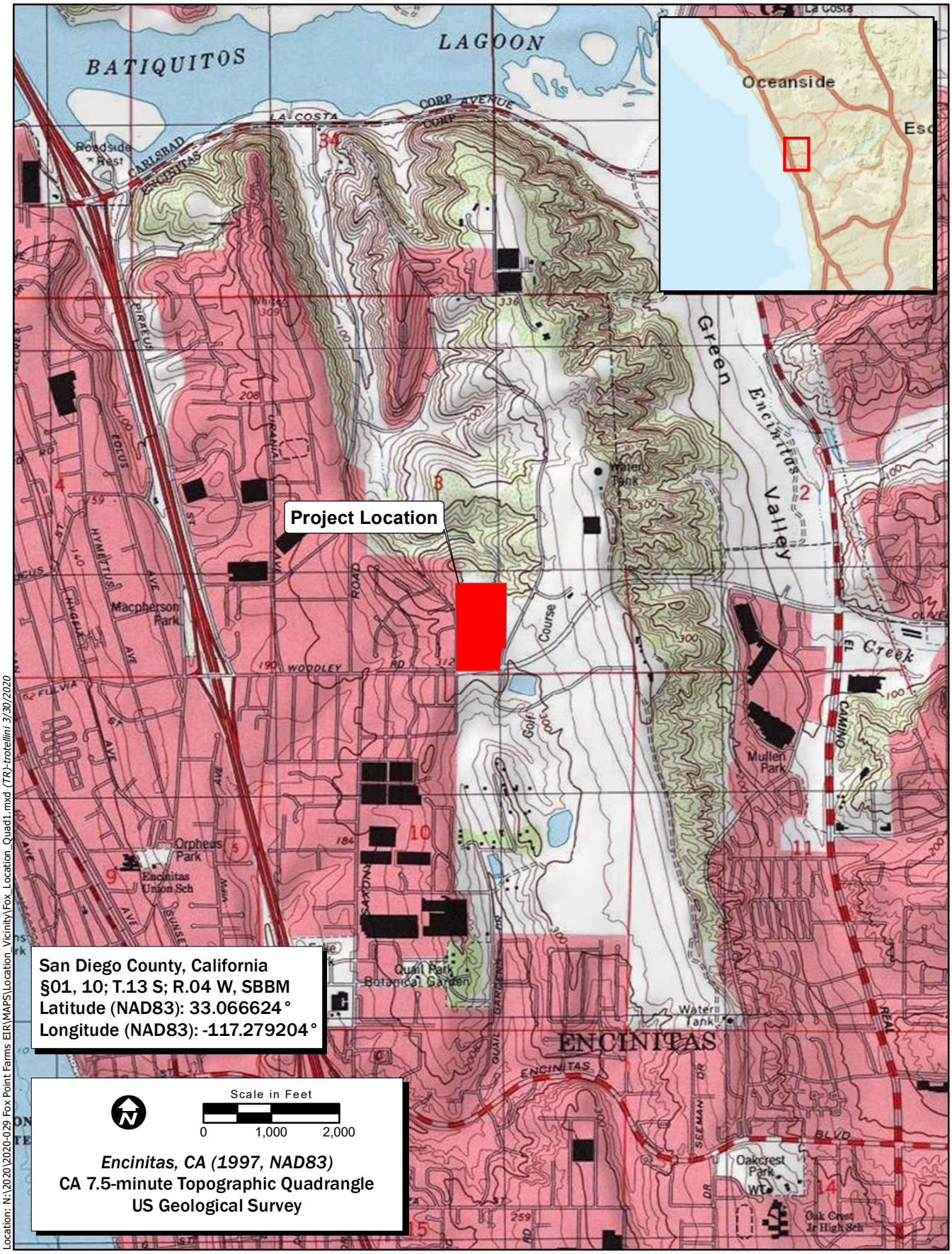
Map Date: 3/24/2020

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

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Figure 1. Project Vicinity

2020-029 Fox Point EIR Project



Location: N:\2020\2020-029 Fox Point Farms EIR\MAPS\Location_Vicinity\Fox_Location_Quad1.mxd (TR)-trotellini 3/30/2020

Map Date: 3/30/2020

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

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Figure 2. Project Location

2020-029 Fox Farms EIR Project

The vertical APE is described as the maximum depth below the surface to which excavations for project foundations and facilities will extend. Therefore, the vertical APE includes all subsurface areas where archaeological deposits could be affected. The subsurface vertical APE varies across the project, depending on the depth of the grading or trenching for installation of facilities. This study assumes it could extend as deep as 10 feet below the current surface; therefore, review of geologic and soils maps was necessary to determine the potential for buried archaeological sites that cannot be seen on the surface.

The vertical APE also is described as the maximum height of structures that could impact the physical integrity and integrity of setting of cultural resources, including districts and traditional cultural properties. The current study assumes the above-surface vertical APE is up to 30 feet above the surface.

1.4 Regulatory Context

To meet the regulatory requirements of this Project, this cultural resources investigation was conducted pursuant to the provisions for the treatment of cultural resources contained within Section 106 of the National Historic Preservation Act (NHPA) and in CEQA (Public Resources Code [PRC] § 21000 et seq.) The goal of NHPA and CEQA is to develop and maintain a high-quality environment that serves to identify the significant environmental effects of the actions of a proposed project and to either avoid or mitigate those significant effects where feasible. CEQA pertains to all proposed projects that require state or local government agency approval, including the enactment of zoning ordinances, the issuance of conditional use permits, and the approval of development project maps. The NHPA pertains to projects that entail some degree of federal funding or permit approval.

The NHPA and CEQA (Title 14, California Code of Regulations [CCR], Article 5, § 15064.5) apply to cultural resources of the historical and pre-contact (prehistoric) periods. Any project with an effect that may cause a substantial adverse change in the significance of a cultural resource, either directly or indirectly, is a project that may have a significant effect on the environment. As a result, such a project would require avoidance or mitigation of impacts to those affected resources. Significant cultural resources must meet at least one of four criteria that define eligibility for listing on either the CRHR (PRC § 5024.1, Title 14 CCR, § 4852) or the National Register of Historic Places (NRHP) (36 Code of Federal Regulations [CFR] 60.4). Cultural resources eligible for listing on the NRHP are considered Historic Properties under CFR 36 Part 800 and are automatically eligible for the CRHR. Resources listed on or eligible for inclusion in the CRHR are considered Historical Resources under CEQA.

Tribal Cultural Resources are defined in Section 21074 of the California PRC as sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either included in or determined to be eligible for inclusion in the CRHR, or are included in a local register of historical resources as defined in subdivision (k) of Section 5020.1, or are a resource determined by the Lead Agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. Section 1(b)(4) of Assembly Bill (AB) 52 established that only California Native American tribes, as defined in Section 21073 of the California PRC, are experts in the identification of Tribal Cultural Resources and impacts thereto. Because ECORP does not meet the definition of a California Native

American tribe, this report only addresses information for which ECORP is qualified to identify and evaluate, and that which is needed to inform the cultural resources section of CEQA documents. This report, therefore, does not identify or evaluate Tribal Cultural Resources. Should California Native American tribes ascribe additional importance to or interpretation of archaeological resources described herein, or provide information about non-archeological Tribal Cultural Resources, that information is documented separately in the AB 52 tribal consultation record between the tribe(s) and Lead Agency, and summarized in the Tribal Cultural Resources section of the CEQA document, if applicable.

In addition, in the event that the Project may affect Waters of the U.S., thereby requiring the Project proponent to meet the requirements of Section 404 of the Clean Water Act and obtain a permit from the U.S. Army Corps of Engineers' Regulatory Division, this report was prepared to contribute to compliance with Section 106 and all implementing regulations. Moreover, because the Project may qualify as a federal undertaking, regulations (36 CFR 800) implementing Section 106 of the NHPA require that cultural resources be identified and then evaluated using NRHP eligibility criteria.

1.5 Report Organization

The following report documents the study and its findings and was prepared in conformance with the California Office of Historic Preservation's (OHP) *Archaeological Resource Management Reports: Recommended Contents and Format*. Attachment A includes a confirmation of the records search with the California Historical Resources Information System (CHRIS) and historical society coordination. Attachment B contains documentation of a search of the Sacred Lands File. Attachment C presents photographs of the Project Area. Attachment D contains cultural resources California Department of Parks and Recreation 523 site record forms.

Sections 6253, 6254, and 6254.10 of the California Code authorize state agencies to exclude archaeological site information from public disclosure under the Public Records Act. In addition, the California Public Records Act (Government Code § 6250 et seq.) and California's open meeting laws (The Brown Act, Government Code § 54950 et seq.) protect the confidentiality of Native American cultural place information. Under Exemption 3 of the federal Freedom of Information Act (5 U.S. Code [USC] 5), because the disclosure of cultural resources location information is prohibited by the Archaeological Resources Protection Act of 1979 (16 USC 470hh) and Section 307103 of the NHPA, it is also exempted from disclosure under the Freedom of Information Act. Likewise, the Information Centers of the CHRIS maintained by the OHP prohibit public dissemination of records search information. In compliance with these requirements, the results of this cultural resource investigation were prepared as a confidential document, which is not intended for public distribution in either paper or electronic format.

2.0 SETTING

2.1 Environmental Setting

The Project Area is located in the City of Encinitas, on a coastal ridge at the eastern edge of a fully developed urban and suburban neighborhood setting. The Project Area is 1.4 miles east of the Pacific Ocean and 1.4 miles south of Batiquitos Lagoon. Elevations range from 300 to 320 feet above mean sea level across the Project Area. The Project Area is bordered by Quail Gardens Drive to the east, Leucadia

Boulevard to the south, and Sidonia Street to the west. The Magdalena Ecke Open Space Preserve is located immediately to the north of the Project Area, providing a coastal sage scrub habitat.

2.2 Geology and Soils

Kennedy and Tan (2007) have mapped the underlying geology of the Project Area as very old paralic deposits, Units 10 and 11, that are dated to the Early to Middle Pleistocene (2.588 - 0.126 Ma). They further escribe the native soils as poorly sorted, moderately permeable, reddish-brown, interfingered strandline, beach, estuarine, and colluvial deposits composed of siltstone, sandstone, and conglomerate (Kennedy and Tan 2007). The area under consideration is located on a ridge to the south of a natural drainage. These geological deposits are typical of near-coastal ridges and bluffs in San Diego County, whereas the older stratigraphy of the Santiago Formation (Middle Eocene 47.8 - 37.8 Ma) may be found in the drainages below the ridge.

According to the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) Web Soil Survey website (NRCS 2020), four soil types are located within the Project Area: Carlsbad gravelly loam sand, 2 to 5 percent slopes; Chesterton fine sandy loam, 2 to 5 percent slopes; Cinebar coarse sandy loam, 5 to 15 percent slopes; and rough broken land at the northeastern edge of the Project Area where erosion of the terrace has taken place.

There exists the potential for buried pre-contact archaeological sites in the Project Area due to its proximity to the Pacific Ocean and presence in a region that is recognized to have been in regular use by Native Americans for thousands of years. The drainage that exists to the north contributes to this potential because of the likelihood of pre-contact archaeological sites located along perennial and intermittent waterways in the region.

3.0 CULTURAL CONTEXT

3.1 Regional Pre-contact History

The archaeological history of southern California is remarkably complex, with a great deal of variation and the overlapping of specific technological and cultural traditions from the onset of documented human habitation in the terminal Pleistocene to the period of European contact in the Late Holocene. Today, archaeology and culture history are typically described according to geological epoch, with delineations in years before present (BP) between the Pleistocene (>10,000 BP), Early Holocene (10,000-6,500 BP), Middle Holocene (6,500 BP-3,500 BP) and the Late Holocene (3,500 BP to present). This approach places human history squarely in the realm of greater ecology and geological history in a way that allows discussion of human activity through time without limitations imposed by provincial labels. In California, this distinct use of geological terminology is not entirely arbitrary, as elements of technological change and diversification in cultural practices are observable at the transition of temporal periods (Erlandson and Colten 1991). However, terminology that is generally accepted by California archaeologists and the California OHP is still helpful in describing ancient patterns of human activity. The predominant archaeological patterns through time in San Diego County in relation to behavioral traditions and temporal periods, and in specific reference to the Project Area are discussed below.

3.1.1 San Dieguito Complex – 10,000 to 8,500 BP

Terminal Pleistocene archaeological deposits are notably present on the California Channel Islands, but the onset of human activity in coastal areas of the Southern Bight appear after 10,000 BP (Erlandson et al. 2007). Early Holocene warming temperatures, rising sea levels, and megafaunal extinction resulted in landscape and resource changes that contributed to alternative subsistence strategies in local populations, with an emphasis on hunting smaller game and increasing reliance on plant gathering. Early Holocene archaeological sites in San Diego County occur around bays, sloughs, and coastal valleys that allowed early peoples continued access to aquatic resources. These coastal sites contain large amounts of marine faunal remains along with worked tools, such as lithic bifaces, milling tools, and bone tools from which archaeologists may reconstruct the human past in southern California (Gallegos 1991).

The San Dieguito Complex is a cultural tradition originating in the Early Holocene and defined by material found at the Harris archaeological site (CA-SDI-149) on the San Dieguito River near Lake Hodges in San Diego County (Warren 1968). Diagnostic artifacts associated with the San Dieguito Complex include lithic manufacturing implements and a variety of chipped stone tools, including projectile points, knives, scrapers, engraving tools, and stone crescents (Knell and Becker 2017; Koerper et al. 1991). Particular interest has been paid to the stone crescents that appear in Terminal Pleistocene and Early Holocene deposits throughout the region. Though only a single specimen was found at CA-SDI-149, this class of artifacts has come to define human-environmental interactions of the period due to association with paleoshorelines and wetland habitats that existed on the Channel Islands, along the California coast, in interior areas of California and the Great Basin, and further east in what is today Wyoming and Colorado between approximately 12,000-8,000 cal BP (Moss and Erlandson 2013). The majority of these crescents appear to be utilitarian implements for the hunting of birds (Erlandson and Braje 2008; Moss and Erlandson 2013). Sanchez et al. (2017) have confirmed a strong spatial association between stone crescents and reconstructed wetland habitats, supporting the argument that these artifacts were predominantly used for the harvesting of aquatic species and avifaunal resources that once existed along Terminal Pleistocene-Early Holocene paleoshorelines.

The San Dieguito Complex at CA-SDI-149 dates to between 9,030 ±350 BP and 8,490 ±400 BP (Gallegos 1991; Knell and Becker 2017). The presence of comparable artifacts and archaeological deposits are seen specifically throughout Southern California and northwestern Mexico between 9,000 and 7,000 BP. However, it is important to note the scarcity of San Dieguito materials and radiocarbon age determinations as well as the substantial spatiotemporal overlap with artifacts and faunal assemblages typically associated with later cultural traditions (Scharlotta 2015). The established use of groundstone technologies during the Early Holocene provides support for the continuation of certain subsistence practices during the Middle Holocene concurrent with decreases in wetland associated flaked-stone lithic assemblages. Early Holocene sites in coastal San Diego County have yielded artifacts and subsistence remains characteristic of succeeding technological traditions, including manos, metates, core-cobble tools, and species of marine shell more closely associated with the lagoon ecosystems, hotter and drier environmental contexts, and variable behavioral practices of the Middle Holocene (Gallegos 1991; Koerper et al. 1991).

3.1.2 La Jolla Complex – 8,500 to 1,300 BP

Sea levels continued to rise during the Early to Middle Holocene transition, eventually stabilizing around 6,000 BP and filling low-lying coastal areas and canyons in what became a relatively dense concentration of highly productive estuaries and coastal ecosystems (Masters and Gallegos 1997). The relationship of human populations to coastal resources consequently changed through time. Rocky reefs and kelp beds were more extensive during the earlier part of the Holocene and exploited by humans settling on the coast. Early Holocene coastal populations tended to aggregate around estuaries and areas of dense intertidal and littoral sustenance resources, but a greater focus on lagoon resources can be seen in later archaeological deposits. As sea level rose, a transition in species of exploited shellfish and vertebrates is seen, from rocky reef species to sandy beach species that reflects the changes in shoreline during the Middle Holocene. Western North America experienced a period of increased warmth and aridity during the Middle Holocene that likely impacted migrations and settlement patterns from the continental interior to the coast (Kennett et al. 2007). Increasingly, human populations in California began to process plant foods with the manos (pestles) and metates (mortars) in an observable shift in technology and subsistence practices that effectively replaced the San Dieguito Complex with a lengthy tradition of cultural behaviors alternately termed the La Jolla Complex (Warren et al. 1961; Byrd and Raab 2007), Encinitas Tradition (Warren 1968), and Milling Stone Period (Wallace 1955). The term "La Jolla Complex" is used here.

The La Jolla Complex is most identified with the manos and metates found along the San Diego County coast beginning about 8,500 BP (Sutton and Gardner 2010), but La Jolla tool kits included a wide array of lithic and bone tools. Most La Jolla Complex sites are located around Middle Holocene coastal lagoons, which continued filling with sea water due to the sustained retreat of ice caps and global influx of liquid water following the last glacial maximum (approximately 20,000 BP). Shellfish from these lagoons were an important part of the diet, and most La Jolla sites are classified as shell middens. Both rocky shores shellfish, such as *Mytilus* sp. (mussels), and bay/estuary shellfish, such as *Argopecten* sp. (scallops), *Chione* sp. (cockles), and *Ostrea lurida* (oyster) are found in La Jolla sites. Rocky shores species are much reduced in quantity and almost disappear from the middens in the Late Holocene. This has been attributed to increased sediment deposition around the mouths of the lagoons along the northern and central San Diego coast, which covered the rocky habitats. Fewer sites were occupied in these areas during the Late Holocene. However, the larger bays to the south (Mission and San Diego bays) never silted in, and there are numerous La Jolla Complex sites in this area (Masters and Gallegos 1997).

The Pauma Complex is a term to describe an inland cultural pattern beginning around 7,500 BP in San Diego County and occurring up to approximately 1,000 BP (Sutton and Gardner 2010; True 1958, 1970). Pauma archaeological deposits have numerous manos and metates similar to coastal sites of the same period but lack the marine subsistence remains seen in La Jolla sites. Other Pauma Complex artifacts include core and cobble tools, scraper planes, unifacial scrapers, and infrequent cogged stones and discoidals. In most Pauma Pattern sites, the mano-metate tool kit predominates, which suggests the collection and processing of seeds and other plant materials. Pauma sites are located on older high-elevation alluvial terraces in valleys and canyons. Some Pauma sites may be buried in shallow alluvium. Shared similarities between the inland Pauma Complex and the coastal La Jolla Complex may reflect extended cultural ties or different seasonal manifestations of the same people, with the La Jolla Complex

emphasizing marine resources (shellfish and fish) and the Pauma Complex emphasizing hard seeds. There are more planing and scraping tools in the La Jolla Complex and more grinding tools (i.e., manos and metates) in the Pauma Complex, which undoubtedly correspond to differential resource procurement and processing throughout this time period (Waugh 1986:55-56).

The San Diego coastline began to resemble its current appearance after about 3,500 BP, with estuaries silting in and a consequential decline in lagoon resources due to increased sedimentation along the San Diego coastline (Gallegos 2002). A warming climate, combined with the loss of estuarine resources during the Middle Holocene, resulted in an observable transition in settlement patterns during the Late Holocene as many people moved away from the coasts to more fully exploit inland habitats, though San Diego Bay remained due to freshwater runoff and tidal flushing. Additionally, coastal sedimentation and infilling events coincided with the development of the sandy beaches seen today that eliminated majority rocky coastal environments and gave way to a shift in the kinds of subsistence resources available at these locations (Byrd and Reddy 2002). This increased reliance on sandy shore species and the dominance of small terrestrial taxa in archaeological contexts, such as lagomorphs and waterfowl, is reflective of the unique coastal environment of much of San Diego in the Late Holocene.

3.1.3 Late Period (Kumeyaay) – 1,300 BP to Contact

The Late Period (Kumeyaay) in San Diego archaeology is determined to have begun with substantial cultural and technological changes occurring around 1,300 BP. The Late Holocene exemplified major cultural shifts with the entrance of Shoshonean language speakers, now known as the Cahuilla, Cupeño, and Luiseño, into the northern part of San Diego County sometime between and 3,500 and 1,300 BP. This coincided with the establishment of definitive Ipai and Tipai (Kumeyaay peoples, Yuman language speakers) societal structures throughout the central and southern parts of the County. An abrupt decrease in coastal deposits appears to have occurred after 3,300 BP (Gallegos 2002), though increases in coastal occupation beginning around 1,600 to 1,200 BP appear to mirror sustained population increases throughout San Diego County during the Late Holocene to the present day (Byrd and Reddy 2002). Late Period settlement patterns are characterized by the establishment of permanent, sometimes seasonal, villages and ephemeral satellite sites dedicated to specific tasks, such as tool production, food processing, or resource acquisition (Byrd and Raab 2007). A focus on reliable water sources and intensified subsistence practices is evident in the location and nature of regional Late Period archaeological sites.

The Kumeyaay Period has been associated with population increases, particularly in coastal areas, and changes in settlement patterns (Scharlotta 2015). The Late Holocene was a time of technological change. Choices regarding technology and subsistence practices influenced the nature of human-environmental interactions with an expansion of diet breadth, the establishment of permanent villages, and changes in hunting and gathering processes that also affected social structure during the Kumeyaay period (Bettinger 2013; Gamble and Mattingly 2012). Transition to more sedentary settlement patterns can be witnessed in aspects of technological variation such as the greater use of bedrock mortars in addition to portable milling stones (Byrd and Raab 2007). The Late Period is primarily characterized by use of the bow and arrow, which was introduced to the western United States sometime between 2,300 and 1,300 BP (Bettinger 2013). Bettinger argues that the adoption of bow hunting effected an expansion in the

utilization of once peripheral subsistence resources (i.e., intensification of plant resource harvesting and processing) due to the increased efficacy of hunting among small groups and a shift to more localized resource harvesting among smaller family bands. Decreases in time spent hunting are thought to encourage greater time spent collecting foodstuffs once perceived as too costly.

In San Diego, principal foods for inland populations included acorns, grasses, other seeds, and lagomorphs, in addition to continued hunting of deer. However, people had returned to the coasts during the Kumeyaay Period and were exploiting a wide variety of marine resources in addition to the extensive trade networks along the southern California coast and that of Baja California (Byrd and Raab 2007). Gamble and Mattingly (2012) document more than 200 fire-affected rock features at Torrey Pines State Natural Reserve, positing the use of these features in the processing of Torrey pine nuts (*Pinus torreyana*) by Kumeyaay peoples on the coast over the last two millennia. The introduction of the bow and arrow to Southern California was followed by other archaeologically observable shifts prior to European contact, such as distinguishable changes in projectile point morphology, a switch from Coso (Sierra Nevada source) to Obsidian Butte (Salton Sea) as a source for volcanic glass, and even a transition from burial to cremation for the dead (Gallegos 2002). Ceramics appear in the archaeological record after 1,300 BP, with the distribution of reddish-brown sherds across San Diego County from the Peninsular Ranges to the Coast that differs from a lighter-colored buff pottery found in the deserts to the east (Quinn et al. 2013). Common ceramic forms include round-bottomed jars with restricted necks, bowls, scoops, plates, and other vessels used for cooking and storage. Ceramic pipes were also made (Gallegos 2002). Recovered ceramic specimens exhibit chemical signatures derived from similar geological contexts in the Laguna and Cuyamaca mountains, suggesting the transfer of materials from mountain to coast within the extensive trade networks that undoubtedly existed at this time (Quinn et al. 2013).

3.2 Ethnohistory (Kumeyaay and Luiseño)

The Kumeyaay (also known as Ipai and Tipai) are the Yuman-speaking native people of central and southern San Diego County and the northern Baja Peninsula in Mexico. Spanish missionaries and settlers used the collective term Diegueño for these people, which referred to people living near the presidio and mission of San Diego de Alcalá. Today, these people refer to themselves as Kumeyaay or as Ipai and Tipai, which are northern and southern subgroups of Kumeyaay language speakers, respectively (Luomala 1978). The ancestral lands of the Kumeyaay extend north from Todos Santos Bay near Ensenada, Mexico to Agua Hedionda Lagoon in north San Diego County, and east to the west side of the Imperial Valley.

The primary source of Kumeyaay subsistence was vegetal food. Seasonal travel followed the ripening of plants from the lowlands to higher elevations of the mountain slopes. Acorns, grass and sage seeds, cactus fruits, wild plums, pinyon nuts, and agave stalks were the principal plant foods. Women sometimes transplanted wild onion and tobacco plants to convenient locations and sowed wild tobacco seeds. Deer, rabbits, small rodents, and birds provided meat. Village locations were selected for seasonal use and were occupied by exogamous, patrilineal clans or bands. Three or four clans might winter together, then disperse into smaller bands during the spring and summer (Luomala 1978).

The Kumeyaay were loosely organized into exogamous patrilineal groups termed sibs, clans, gens, and tribelets by ethnographers. The Kumeyaay term was cimul. The cimul used certain areas for hunting and

gathering, but apparently did not control a bounded and defended territory, as did the Luiseño and Cahuilla. In addition, members of several different cimul usually lived in the same residential base, unlike the Luiseño, where a single party or clan controlled a village and its territory. Kumeyaay lived in residential bases during the winter and subsisted on stored resources. No permanent houses were built. Brush shelters were temporary and were not reused the next year. Ceremonies, including rites of passage and ceremonies to ensure an abundance of food, were held in the winter residential bases. The cimul leader directed the ceremonies and settled disputes (Christenson 1990:58, 62). One of the most important ceremonies was the mourning ceremony. Upon death, the Kumeyaay cremated the body of the deceased. Ashes were placed in a ceramic urn and buried or hidden in a cluster of rocks. The family customarily held a mourning ceremony one year after the death of a family member. During this ceremony, the clothes of the deceased individual were burned to ensure that the spirit would not return for his or her possessions (Gifford 1931; Luomala 1978).

The Kumeyaay were geographically and linguistically divided into western and eastern Kumeyaay. The western and eastern Kumeyaay spoke two different dialects (Christenson 1990:64). The western Kumeyaay lived along the coast and in the valleys along the drainages west of the mountains. The eastern Kumeyaay lived in the canyons and desert east of the mountains. The western Kumeyaay spent the winter in residential bases in the lowland valleys and then broke into smaller cimul groups that moved gradually eastward toward the mountains, following ripening plants and occupying temporary residential bases along the way. Thus, each group occupied several different residential bases during the course of a year (Christenson 1990:292-293). The eastern Kumeyaay spent the winter in villages on the desert margin where water was available from springs at canyon mouths. They moved up the canyons toward the mountains during spring and summer. The eastern and western Kumeyaay met in the mountains in the fall where they gathered black oak acorns, traded, and held ceremonies (Christenson 1990:63). The large residential bases in the mountains appear archaeologically to be village sites (Gross and Sampson 1990).

The Kumeyaay population was estimated to be between 10,000 and 20,000 at the time of European contact, based on Spanish accounts and ethnographies (Gallegos 2002). Beginning in 1775, the semi-nomadic life of the Kumeyaay began to change as a result of contact with Euro-Americans, particularly from the influence of the Spanish missions. Through successive Spanish, Mexican, and Anglo-American control, the Kumeyaay were forced to adopt a sedentary lifestyle and accept Christianity (Luomala 1978).

The Project Area is located to the south of Batiquitos Lagoon in what is generally accepted as traditional Kumeyaay territory. However, boundaries between ancestral territories are often fluid or loosely defined due to movement and interaction among pre-contact and post-contact populations. Luiseño communities are posited to have extended as far south as the north side of Batiquitos Lagoon. The Luiseño are one of the Takic-speaking groups that were present in southern California prior to the arrival of Euro-Americans. Luiseño occupied most of the area drained by the San Luis Rey and Santa Margarita rivers.

The Luiseño lived in sedentary and autonomous village groups, each with specific subsistence territories encompassing hunting, collecting, and fishing areas. Villages were typically located in valley bottoms, along streams, or along coastal strands near mountain ranges where water was available and village defense was possible. Inland populations had access to fishing and gathering sites on the coast, which they used during the winter months (Bean and Shipek 1978).

Luiseño subsistence was based on the gathering of acorns, seeds, greens, bulbs, roots, berries, and other vegetal foods. This was supplemented by hunting mammals such as deer, antelope, rabbit, woodrat, ground squirrels, and mice, as well as birds including quail, doves, and ducks. Bands along the coast also exploited marine resources, such as sea mammals, fish, crustaceans, and mollusks. Inland, trout and other fish were taken from mountain streams (Bean and Shipek 1978).

Hunting was done both individually and by organized groups. Tool technology for food acquisition, storage, and preparation reflects the size and quantity of items procured. Small game was hunted with the use of curved throwing sticks, nets, slings, or traps. Bows and arrows were used for hunting larger game. Dugout canoes, basketry fish traps, and shell hooks were used for near-shore ocean fishing. Coiled and twined baskets were made for food gathering, preparation, storing, and serving. Other items used for food processing included large shallow trays for winnowing chaff from grain, ceramic and basketry storage containers, manos and metates for grinding seeds, and ceramic jars for cooking (Bean and Shipek 1978).

Luiseño social organization was based on patrilineal and patrilocal lineages. Exogamy rules required that a man could not marry a woman related to them within five generations. Women moved to their husband's village but kept their identity as a member of their natal lineage (Cultural Systems Research 2005). The Luiseño corporate group was a "party" composed of one major lineage with a ceremonial leader (chief), a ceremonial bundle, and a ceremonial house or enclosure. Members of other lineages within the party could live in the same village as the major lineage or within other villages within the party territory. The ceremonial chief was also the hereditary chief of the party who organized religious, economic, and military activities (Goldberg 2001:47). An advisory council of ritual specialists and shamans was consulted for their specialized knowledge. Resources within the party territory were owned by the party. The party territory was marked by boundary markers and was defended against trespassers (Waugh 1986).

Houses were circular with conical roofs and were made of a framework of logs covered by tules, sedge, or bark and a layer of earth. The floors of the houses were about two feet below the ground surface. Houses had a central fireplace, but most cooking was done outside. Round earth-covered semi-subterranean sweathouses with an interior fire pit were primarily used by men and were located next to a stream or pond. Ramadas, flat-roofed open structures, provided shade for work areas (Cultural Systems Research 2005). Women's work areas often consisted of a circular windbreak made of arrow weed or tule. They had a hard-packed earth floor that was swept to remove debris. Earth ovens consisted of a pit with a ring of rocks. Granaries for storing acorns, seeds, and nuts were made of woven arrow weed or willow, sealed with mud. They were built on platforms, on top of houses, or on boulders to keep burrowing animals out. Caves and rock shelters in or near villages were used for activity areas, as caches, and for ceremonies. Rock shelters away from the village could be used as temporary camps. Other temporary camps had lean-tos made of willows with an adjacent fire pit (Cultural Systems Research 2005).

When the Spanish arrived in southern California in 1769, it is estimated that there were 50 Luiseño villages with a population of about 200 each, suggesting a total population of about 10,000 (White 1963).

3.3 Regional History

The first European to visit California was Spanish maritime explorer Juan Rodriguez Cabrillo in 1542. Cabrillo was sent north by the Viceroy of New Spain (Mexico) to look for the Northwest Passage. Cabrillo visited San Diego Bay, Catalina Island, San Pedro Bay, and the northern Channel Islands. The English adventurer Francis Drake visited the Miwok Native American group at Drake's Bay or Bodega Bay in 1579. Sebastian Vizcaíno explored the coast as far north as Monterey in 1602. He reported that Monterey was an excellent location for a port (Castillo 1978). Vizcaíno also named San Diego Bay to commemorate Saint Didacus. San Diego began to appear on European maps of the New World by 1624 (Gudde 1998:332).

In 1769, the Gaspar de Portolá Spanish land expedition arrived in the San Diego area from New Spain (Mexico), and Mission San Diego de Alcalá was founded by Father Junipero Serra as the first of 21 Spanish missions in Alta California. A presidio (military facility for Spanish soldiers) was built near the mission. The purpose of the missions and presidios was to establish Spanish economic, military, political, and religious control over the Alta California territory. The missions sustained themselves through cattle ranching and traded hides and tallow for supplies brought by ship. Mission San Diego was established to convert the Native Americans that lived in the area, known as the Kumeyaay or Diegueño. The presidio and mission were located on a hill on the south side of the San Diego River about three miles inland from the coast. After being destroyed by attacking Kumeyaay in 1775 during an attempt to drive out the Spanish (Robinson 1948:63; Castillo 1978:103), Mission San Diego was rebuilt in its present location on the north side of the river about 5.5 miles upstream from the presidio. However, the presidio remained in its original location and a small town or pueblo developed around it (Caughey 1933:123).

Mexico became independent from Spain in 1821, and what is now California became the Mexican province of Alta California. The Mexican government closed the missions in the 1830s and former mission lands were granted to retired soldiers and other Mexican citizens for use as cattle ranches. Much of the land along the coast and in the interior valleys became part of Mexican land grants or "ranchos" (Robinson 1948). During the Mexican period there were small towns at San Diego (near the presidio), San Juan Capistrano (around the mission), and Los Angeles. The rancho owners lived in one of the towns or in an adobe house on the rancho. The Mexican Period includes the years 1821 to 1848.

The American period began when the Treaty of Guadalupe Hidalgo was signed between Mexico and the United States in 1848. Alta California became part of the United States as the territory of California, officially becoming the State of California in 1850. Most Mexican land grants were confirmed to the grantees by U.S. courts, but usually with more restricted boundaries which were surveyed by the U.S. Surveyor General's office. Land that was not part of a land grant was owned by the U.S. government until it was acquired by individuals through purchase or homesteading. Floods and drought in the 1860s greatly reduced the cattle herds on the ranchos, making it difficult to pay the new American taxes on the thousands of acres they owned. At the same time, the Homestead Act of 1862 brought American settlers to southern California in search of land to claim. Many Mexican-American cattle ranchers borrowed money at usurious rates from newly arrived Anglo-Americans. The resulting foreclosures and land sales transferred most of the land grants into the hands of Anglo-Americans (Cleland 1941:137-138).

3.4 Local History

The Project Area is located in San Diego County, which was created in 1850 as one of the first counties within the new state of California (Coy 1973; Marschner 2000). At that time, the area designated as San Diego County included nearly all of present-day San Diego, Imperial, Riverside, and San Bernardino counties, as well as a small portion of present-day Inyo County (Coy 1973:221; Marschner 2000:39). The City of San Diego continued as a small settlement around the presidio until a new town was platted south of the old town by Alonzo Horton, a San Francisco furniture dealer. He sold lots beginning in 1867 and built a 700-foot wharf in 1869. By 1870 San Diego had 800 buildings and a population of 3,000 (Dumke 1944:134). The completion of the California Southern Railroad from National City and San Diego to San Bernardino via Oceanside in 1883 and the completion of the Santa Fe line from Los Angeles to Oceanside (connecting to San Diego via the California Southern track) in 1888 resulted in a real estate boom and the economic development of the San Diego area (Dumke 1944:136-137). The population continued to increase throughout the earlier part of the twentieth century, with continued growth in the City of San Diego as well as the gradual growth and eventual incorporation of various rural communities throughout San Diego County.

The Project Area is located within the City of Encinitas, approximately 25 miles north of downtown San Diego. Encinitas is a coastal beach community of northern San Diego County that was incorporated in 1986 from several smaller beachside and rural communities. Today, the city is an upscale community of 60,000 people. The area has become a locus for the beaches and outdoor activities, with a focus on arts and a local business district that exists along North Coast and South Coast Highway 101.

3.5 Architectural Context

The historic-period residence was relocated to the Project Area in the 1950s and was placed at the gate that entered the mesa to keep an eye on the property (Brian Grover, personal communication 2020). The residence is an example of the Craftsman style of architectural; therefore, an architectural context on Craftsman is included in order to support the evaluation of the building under CRHR Criterion 3 and NRHP Criterion C, which deal with architectural characteristics and styles.

The Craftsman style originated in southern California from 1905 to the mid-1920s. Craftsman homes were inspired by two brothers, Charles Sumner Greene and Henry Mather Greene. Greene and Greene practiced in Pasadena from 1893 to 1914. In 1903, the brothers designed simple Craftsman-type bungalows. Generally, Craftsman style homes were one or one and one-half stories, low-pitched, gabled roof with wide, unenclosed eave overhang, and decorative beams placed under gables and porches. Craftsman-style homes were favored between the years 1905 to 1930 (McAlester 2013).

Craftsman style architectural features include large covered porches with distinctive columns that rest upon piers or solid porch balustrade, stone or brick chimney, dormers, multiple rooflines, a horizontal line of windows or grouped windows, and exposed rafters. The Craftsman style home first originated in southern California and prime examples are concentrated there.

The first Craftsman bungalows began appearing in San Diego around 1905, most notably when George W. Marston, known as “San Diego’s first citizen” or “Father of Balboa Park”, hired the architecture firm of

Hebbard and Gill to design their house located near modern-day Balboa Park (Kramer 2014). The Marston house is listed on the NRHP and currently serves as a museum, allowing people to see the house that helped start the Craftsman style of houses in San Diego. After 1905, Craftsman Bungalow houses began appearing throughout the city, many being designed by noted architects, such as David Owen Dryden and the Greene brothers, who worked in San Diego and Pasadena, respectively, and Bernard Maybeck, who designed many Craftsman houses in northern California, notably houses located in La Loma Park in Berkley (Carney 2017; Freudenheim 2005).

3.6 Historic Context of Roads

Road development in the U.S. primarily consisted of expanding local urban streets, utilitarian in design and function, in the eastern U.S. and moving westward across the nation. California roadways, in particular, largely consisted of dirt utilitarian roads from the period of the Gold Rush through the turn of the twentieth century. From 1890 to 1926, the groundwork was laid for the modern road network, largely due to a number of factors including the advent of the pneumatic tire and the expansion of production of the affordable personal automobile (the Ford Model T being the industry leader). These new convenient modes of transportation began the slow decline in the use of the railroad, consisting of several hundred thousand miles of track in the U.S. and previously considered the most efficient and reliable mode of transportation and shipping. This decline led automobile and automobile accessory manufacturers to usher in the "Good Roads Movement" (Marriott 2010).

The Good Roads Movement was first advocated by bicycle organizations seeking hard-surfaced roads. Automobile industry advocates, however, quickly found the development of a better planned road network a greater concern. Despite national efforts to develop hard-surface roads, the prohibitive cost caused a priority shift in the Good Roads Movement from hard-surface roads to a well-planned road network. In California, many of these road networks began to be constructed during the late part of the nineteenth and into the early part of the twentieth century, particularly in rural areas. Rural road development was crucial for the expansion of agricultural lands since farmers and ranchers needed a better network of roads to transport their crops or goods from the farms and fields to train stations for transport. Prior to the Good Roads Movement, rural farmers depended on extremely underdeveloped roads, consisting mostly of known paths or routes to get to those stations while access to urban or other rural areas was limited because existing road networks often did not connect simply with each other. The agricultural industry began to flourish with use of the new road networks as a result of the Good Roads Movement. Light-duty developed roads, such as Site AM-001, were constructed and used by rural farmers and ranchers to transport their goods not only to local train stations but, through the new networks of decent roads, to other urban areas or even other rural towns (Marriott 2010).

By the end of the Good Roads Movement, from 1910 to 1926, large intrastate and interstate highways, even transcontinental highways such as the Lincoln Highway, were constructed. These large networks of roads were primarily in response to the advent of World War I and the nation's realization that if the war was ever fought on U.S. soil, the existing road networks could not support the necessary military mobilization for the war effort. Therefore, better connectivity in large roads and urban centers became a top priority toward the end of the Good Roads Movement. In addition, pavement became the new

medium for these larger roads and was also used extensively in these larger highways and roads (Hokanson 1999).

The network of roads in the U.S., and California, was beginning to come together toward the end of the Good Roads Movement. One of the last stages of the Movement was the development of scenic roads. Scenic road development was largely advocated by the NPS to allow automobile access within their parks. Prior to road development, access to National Parks was reliant on railroads and simple carriage rides within parks. At the end of the Good Roads Movement, however, automobile safe routes were constructed within National Parks and other scenic roads were built to attract travelers away from the urban areas (Marriott 2010).

4.0 METHODS

4.1 Personnel Qualifications

All phases of the cultural resources investigation were conducted or supervised by Registered Professional Archaeologist (RPA) John O'Connor, Ph.D., who meets the Secretary of the Interior's Professional Qualifications Standards for prehistoric and historic archaeology. Dr. O'Connor requested and reviewed the CHRIS records search results and Native American Heritage Commission (NAHC) Sacred Lands File results, conducted the fieldwork, and prepared the report. The architectural history evaluation and analysis was conducted by Principal Investigator and Architectural Historian Jeremy Adams, who meets the Secretary of the Interior's Professional Qualifications Standards for architectural history and history. Jeremy Adams, M.A., conducted architectural history background research and prepared the historical building evaluation. Diana Malarchik, M.A., RPA, and Staff Archaeologist Megan Webb conducted architectural history background research and helped prepare the report. Lisa Westwood, RPA, provided technical report review and quality assurance.

John O'Connor, Ph.D., is an RPA with over 10 years of archaeological experience in North America and the Pacific Islands, experience that includes cultural resources management, academic research, museum collections management, and university teaching. Dr. O'Connor meets the Secretary of the Interior's Professional Qualifications Standards for prehistoric and historic archaeology. He is well versed in the evaluation of impacts to cultural resources for CEQA and NHPA projects, and he has written or otherwise contributed to numerous environmental compliance documents. Dr. O'Connor serves as the Southern California Cultural Resources Manager for ECORP.

Jeremy Adams meets the Secretary of the Interior's Standards for Architectural History and History, holding an M.A. degree in History (Public History) and a B.A. degree in History, with 10 years of experience specializing in historic resources of the built environment. He is skilled in carrying out historical research at repositories such as city, state, and private archives, libraries, CHRIS information centers, and historical societies. He has experience conducting field reconnaissance and intensive surveys. Mr. Adams has conducted evaluations of cultural resources for eligibility to the NRHP and CRHR.

Diana Malarchik, RPA is an Associate Archaeologist at ECORP. She holds an M.A. in Anthropology (Biological Anthropology). Ms. Malarchik has over a year of full-time professional experience in field surveys and archaeological excavation for cultural resources in northern California and northern Nevada.

Her experience includes serving as technical field staff on a wide range of cultural resources projects many involving inventories, evaluations, archaeological monitoring, and archaeological and built environment property evaluations. Ms. Malarchik is also highly knowledgeable in the field of human osteology and has conducted multiple burial recoveries in the context of bioarchaeology and forensic cases.

Ms. Webb is a Staff Archaeologist for ECORP and has more than five years of experience in cultural resources management, primarily in California. She holds a B.A. degree in Anthropology and has participated in all aspects of cultural resources, including survey, test excavation, and data recovery. She has also conducted numerous archival research investigations.

Lisa Westwood is an RPA who meets the Secretary of the Interior's Professional Qualifications Standards for prehistoric and historic archaeology with 25 years of experience. She holds a B.A. degree in Anthropology and an M.A. degree in Anthropology (Archaeology). She is the Director of Cultural Resources for ECORP.

4.2 Records Search Methods

ECORP requested a records search for the property at the South Coastal Information Center (SCIC) of the CHRIS at San Diego State University on February 26, 2020 (Attachment A). The purpose of the records search was to determine the extent of previous surveys within a one-mile (1600-meter) radius of the proposed project location, and whether previously documented pre-contact or historic-period archaeological sites, architectural resources, or traditional cultural properties exist within this area.

In addition to the official records and maps for archaeological sites and surveys in San Diego County, the following historic references were also reviewed: Historic Property Data File for San Diego County (OHP 2012); *The National Register Information System* (National Park Service [NPS] 2020); *Office of Historic Preservation, California Historical Landmarks* (OHP 2020); *California Historical Landmarks* (OHP 1996 and updates); *California Points of Historical Interest* (OHP 1992 and updates); *Directory of Properties in the Historical Resources Inventory* (1999); *Caltrans Local Bridge Survey* (California Department of Transportation [Caltrans] 2019); *Caltrans State Bridge Survey* (Caltrans 2018); and *Historic Spots in California* (Kyle 2002).

Other references examined include a RealQuest Property Search and historic General Land Office (GLO) land patent records (Bureau of Land Management [BLM] 2020). Historic maps reviewed include:

- 1881 BLM GLO Plat Maps for Township 13 South, Range 4 West;
- 1893 USGS Oceanside Sheet, California topographic quadrangle map (1:250,000 scale);
- 1955 USGS Encinitas, California topographic quadrangle map (1:24,000 scale);
- 1968 USGS Encinitas, California topographic quadrangle map (1:24,000 scale); and
- 1968 (photo revised 1975) USGS Encinitas, California topographic quadrangle map (1:24,000 scale).

Historic aerial photographs taken in 1947, 1953, 1964, 1967, 1980, 1990, 1994, 1997, and 2002 to present were reviewed for any indications of property usage and built environment (NETROnline 2020). Topographic maps from 1893, 1955, 1963, 1968, 1975, 2001, 2012, 2015, and 2018 were also reviewed for information.

4.3 Sacred Lands File Coordination Methods

In addition to the record search, ECORP contacted the California NAHC on February 26, 2020 to request a search of the Sacred Lands File for the APE (Attachment B). This search will determine whether or not Sacred Lands have been recorded by California Native American tribes within the APE, because the Sacred Lands File is populated by members of the Native American community who have knowledge about the locations of tribal resources. In requesting a search of the Sacred Lands File, ECORP solicited information from the Native American community regarding tribal cultural resources, but the responsibility to formally consult with the Native American community lies exclusively with the federal and local agencies under applicable state and federal law. ECORP was not delegated authority by the lead agencies to conduct tribal consultation.

4.4 Archival Research Methods

Focused archival research on the two historic-period resources was carried out by Associate Archaeologist Diana Malarchik, RPA. Archival research was conducted to gather and review adequate community and civic context for the building evaluation.

ECORP also conducted historical research utilizing newspaper articles, historical maps, and secondary resources where available. Very few records were found containing specific information about the resources. Online research was undertaken for other documents relating specifically to the City and the industrial context of the community. ECORP reviewed The Paul Ecke Ranch, Inc. Business Records and Family Papers online at the Special Collections in the California State University of San Marcos Library for relevant information on the family and the resources within the Project Area. ECORP also contacted the regional assessor's office, planning department, and building office for relevant building permits and assessor records.

ECORP also completed searches with online repositories. ECORP searched the Online Archive of California to browse the collections of archives and libraries throughout the state in search of relevant historical information pertinent to the property or appropriate historic context. The archival research, the online research, and review of building records resulted in sufficient information for ECORP to prepare an evaluation of the building and the road.

4.5 Field Methods

On March 19, 2020, ECORP subjected the 21.48-acre Project Area to a pedestrian survey under the guidance of the *Secretary of the Interior's Standards for the Identification of Historic Properties* (NPS 1983) (Figure 2). However, nearly the entire Project Area is currently developed with artificial paving and other modern permanent structures and modern built environment features that obscure any native soils or surfaces. ECORP expended one-quarter of one person-day in the field. At that time, developed and exposed ground surfaces were examined for indications of surface or subsurface cultural resources. The general morphological characteristics of the ground surface were inspected for indications of subsurface deposits that may be manifested on the surface, such as circular depressions or ditches. Whenever possible, the locations of subsurface exposures caused by such factors as rodent activity, water or soil erosion, or vegetation disturbances were examined for artifacts or for indications of buried deposits. No subsurface investigations or artifact collections were undertaken during the pedestrian survey.

The entire exterior of the residence was walked and photographed. Access to the interior of residence was not available, but not needed for the evaluation. During the field visit, architectural details and integrity considerations were noted for the features of residence, including their setting relative to each other and the rest of the property.

4.6 Evaluation Criteria

4.6.1 State Evaluation Criteria

Under state law (CEQA) cultural resources are evaluated using CRHR eligibility criteria in order to determine whether any of the sites are historical resources, as defined by CEQA. CEQA requires that impacts to historical resources be identified and, if the impacts would be significant, that mitigation measures to reduce the impacts be applied.

An historical resource is a resource that:

1. is listed in or has been determined eligible for listing in the CRHR by the State Historical Resources Commission;

2. is included in a local register of historical resources, as defined in PRC 5020.1(k);

3. has been identified as significant in an historical resources survey, as defined in PRC 5024.1(g); or

4. is determined to be historically significant by the CEQA lead agency [CCR Title 14, § 15064.5(a)]. In making this determination, the CEQA lead agency usually applies the CRHR eligibility criteria.

In making this determination, the CEQA lead agency usually applies the CRHR eligibility criteria. The eligibility criteria for the CRHR are as follows [CCR Title 14, § 4852(b)]:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

2. it is associated with the lives of persons important to local, California, or national history;

3. it embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or

4. it has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition, the resource must retain integrity. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association [CCR Title 14, § 4852(c)].

Impacts to an historical resource (as defined by CEQA) are significant if the resource is demolished or destroyed or if the characteristics that made the resource eligible are materially impaired [CCR Title 14, § 15064.5(a)].

4.6.2 Federal Evaluation Criteria

Under federal regulations implementing Section 106 of the NHPA (36 CFR 800), cultural resources identified in a Project APE are evaluated using NRHP and eligibility criteria. The eligibility criteria for the NRHP are as follows (36 CFR 60.4):

> "The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess aspects of integrity of location, design, setting, materials, workmanship, feeling, association, and
>
> a) is associated with events that have made a significant contribution to the broad patterns of our history;
> b) is associated with the lives of a person or persons significance in our past;
> c) embodies the distinctive characteristics of a type, period or method of construction, or represents the work of a master, or possesses high artistic value, or represents a significant and distinguishable entity whose components may lack individual distinction; or
> d) has yielded or may be likely to yield information important in prehistory or history.

In addition, the resource must be at least 50 years old, except in exceptional circumstances (36 CFR 60.4)".

Effects to NRHP-eligible resources (historic properties) are adverse if the project may alter, directly or indirectly, any of the characteristics of an historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

5.0 RESULTS

5.1 Records Search

The results of the CHRIS records search were received by ECORP on April 8, 2020 (Attachment A). The records search consisted of a review of previous research and literature, records on file with the SCIC for previously recorded resources, and historical aerial photographs and maps of the vicinity.

5.1.1 Previous Research

Sixty-four previous cultural resource investigations have been conducted within one mile of the Project Area between 1973 and 2016. The records search indicates that the entire Project Area was previously surveyed through a combination of overlapping investigations conducted in the years 1986, 1992, 1993, and 1995 (reference report numbers SD-00671, SD-01163, SD-02753, SD-03028, SD-04711, and SD-09977). Though the records search revealed cultural resources investigations that overlapped portions of the Project Area as late as 1995, these studies were carried out over 25 years ago and are considered obsolete under current standards and protocols. An updated pedestrian survey was warranted. A list of previous cultural resource investigations identified during this records search may be found in Attachment A.

The CHRIS records search also determined that 21 previously recorded cultural resources are located within one mile of the Project Area (Table 1). Previously recorded resources are comprised of 16 pre-contact resources, three historic-period resources, one multicomponent resource, and one unknown resource due to a missing site record at the SCIC. Pre-contact resources comprise a mix of habitation/camp sites, shell middens, shell and lithic scatter, lithic tools, and ceramic potsherds. Historic-period resources include two historic-period houses and a trash deposit. The multicomponent resource consists of a pre-contact habitation site and a historic-period farmstead. No previously recorded resources are located within the Project Area. Details of all 21 previously recorded resources are included in Table 1.

Table 1. Previously Recorded Cultural Resources In or Within One Mile of the Project Area

Primary Number P-37-	Site Number CA-SDI-	Recorder and Year	Age/ Period	Site Description	Within Project Area?
000605	000605	M. Kowta (1959)	Pre-contact	One mano and one scraper	No
004391	004391	Stan Berryman (1976)	Pre-contact	Campsite with one hearth stone, four manos, three core fragments, and 20+ pieces of lithic debitage	No
004490	004490	Mary Ryzdynski (1972)	Pre-contact	Village site with three burials, manos, metates, choppers, flaked-stone tools, and shell	No
004548	004548	Site Record Missing	N/A	N/A	No
004851	004851	C. Carrillo (1980)	Pre-contact	Shell midden and artifact scatter with four milling stones, five lithic cores, and eight pieces of lithic debitage	No
004872	004872	Andrew Pigniolo (1989)	Pre-contact	Campsite with fire affected rock, one metate, two metate fragments, 15 lithic cores, 10 flaked-stone tools, and 300+ pieces of lithic debitage	No

Table 1. Previously Recorded Cultural Resources In or Within One Mile of the Project Area

Primary Number P-37-	Site Number CA-SDI-	Recorder and Year	Age/ Period	Site Description	Within Project Area?
006868	006868	G. Stickel (1979); M. Robbins-Wade (2005); S. Foglia and R. Droessler (2016)	Pre-contact / Historic	Pre-contact habitation site with fire affected rock, lithic debris, Tizon brown ware potsherds, and shell fragments / Historic-period farm site from 1890s with foundations	No
010646	010646	Susan Hector, Harry Price, and Bill Manley (1986)	Pre-contact	Shell midden	No
010647	010647	Susan Hector, Harry Price, and Bill Manley (1986)	Pre-contact	Two shell scatters	No
011027	011027	T. Van Bueren (1988)	Pre-contact	Shell scatter with fire affected rock, two manos, three lithic cores, and lithic debitage	No
012892	012892	Larry J. Pierson (1992)	Historic	Trash deposit	No
013170	013170	Brian F. Smith (1993)	Pre-contact	Shell and lithic scatter	No
013171	013171	Brian F. Smith (1993)	Pre-contact	Shell and lithic scatter	No
013172	013172	David M. Van Horn (1993)	Pre-contact	Campsite with shell and terrestrial faunal remains, two lithic projectile points, Tizon brown ware potsherds, lithic cores, lithic flakes, and mano fragments	No
013173	013173	Brian F. Smith (1993)	Pre-contact	Shell and lithic scatter with lithic tools	No
013174	013174	Brian F. Smith (1993)	Pre-contact	Shell and lithic scatter with lithic tools	No
015583	014329	Sue A. Wade (1996)	Pre-contact	Shell midden	No
024865		P. McGinnis (2002)	Historic	1058 Hymettus Avenue	No
026510	017406	Not listed (updated 2005)	Pre-contact	Campsite with shell midden and charcoal	No
035494	021801	Andrew Giletti, Nicole Falvey, Russel Ott, Mary Robbins-Wade, Tuchon Phoenix (2016)	Pre-contact	Shell scatter with one lithic flake and one mano fragment	No
035835		Shannon Davis and Jennifer Krintz (2013)	Historic	441 Saxony Road	No

5.1.2 Records

The National Register Information System (NPS 2020) did not list any eligible or listed properties within the Project Area. The nearest National Register properties are located eight miles northwest of the Project Area in Carlsbad.

Resources listed as *California Historical Landmarks* (OHP 1996) and by the OHP (OHP 2020) were reviewed on March 27, 2020. The nearest listed landmark is #940: Rancho Guajome, located 12 miles north of the Project Area.

A search of historic GLO land patent records from the BLM's patent information database (BLM 2020) revealed that Thomas Latchford owned the southern half of the southeastern quarter of Section 3, encompassing the Project Area, in 1890 as part of a 160-acre grant (Table 2).

Table 2. GLO Land Patent Records

Patentee	Patent Date	Serial Number	Patent Type/Authority	Location
Thomas Latchford	09/26/1890	CACAAA 083936	May 20, 1862: Homestead Entry Original (12 Stat. 392)	S ½ of the SE ¼ of Section 3

A RealQuest online property search for APN 254-612-12-00 revealed the property consists of 21.48 acres recreational land. No other property history information was on record with RealQuest.

The Caltrans Bridge Local and State Inventories (Caltrans 2018, 2019) does not list any historic bridges in the Project Area.

5.1.3 Map Review and Aerial Photographs

The review of historical aerial photographs and maps of the Project Area provide information on the past land uses of the property and potential for buried archaeological sites. Based on this information, the majority of the property was never initially developed or inhabited until the late 1950s, when the residence was constructed on the property. The flower farm was developed within the Project Area between the 1970s and 1980s. Following is a summary of the review of historical maps and photographs.

- The 1881 BLM GLO Plat Maps for Township 13 South, Range 4 West show the Project Area land as undeveloped. The Project Area is located between the Pacific Ocean and the Rancho Las Encinitas.
- The 1893 USGS Oceanside Sheet, California topographic map (1:250,000 scale) shows that the Project Area is located east of Leucadia. The Project Area and much of the surrounding land east of the coast is undeveloped at this time.
- Aerial photographs from 1947 and 1953 show the Project Area and surrounding land as undeveloped land located 1.5 miles east of the Pacific Ocean. The route of Woodley Road, recorded as FPF-002, visible on the 1947 aerials, but the road alignment is different from the roadway today.
- The 1955 USGS Encinitas, California topographic map (1:24,000 scale) shows the Project Area land as undeveloped. The Project Area is located north of a roadway that has a similar route of today's Leucadia Boulevard.

- Aerial photographs from 1964 show the residence at the southern portion of the Project Area. The residence corresponds to the location the newly recorded historic-period resource FPF-001. In 1964, the residence is located approximately 100 feet north of Woodley Road. Today, the residence is located directly adjacent to Woodley Road, today's Leucadia Boulevard, as the roadway has been widened, improved, and encroached into the parcel. In 1964, the residence includes the main residence and the garage. The land within the Project Area located north of the residence remains development according to the 1964 aerials.
- The 1968 USGS Encinitas, California topographic quadrangle map (1:24,000 scale) shows the Project Area land as undeveloped. The Project Area is located north of a roadway that has a similar route of today's Leucadia Boulevard. The 1969 map has the road labeled as Woodley Road.
- The 1968 (photo revised 1975) USGS Encinitas, California topographic quadrangle map (1:24,000 scale) shows development to the west of the Project Area. The Project Area remains north of Woodley Road, but now there is a large building depicted within the APE which is the Fox Point Farms flower growing facilities. A single building, depicted as a dwelling, is located at the southern edge of the APE, just north of Woodley Road.
- Aerial photographs from 1967 shows the residence and the undeveloped northern portion of the Project Area. In 1967, Woodley Road remains in its historic-period route as a two-lane road.
- A review of aerial photographs taken in 1980 reveal the development of the subdivision to the west of the Project Area. The flower farm within the Project Area is present on 1980 aerials. The 1980 aerials show an addition to the northern façade of the residence.
- Aerial photographs from 1997 shows the development of the intersection of Leucadia Boulevard and Quail Gardens Drive located southeast of the Project Area. As a result of the development of the intersection, Leucadia Boulevard, historically known as Woodley Road, has been improved to a four-lane road and has encroached toward the residence. The flower farm is still in production within the majority of the Project Area.
- Aerial photographs taken from 2002 to present reveals the Project Area as it appears today.

In summary, the property has been undeveloped land located approximately 1.5 miles east of the Pacific Ocean since at least the 1880s. The residence appears within the Project Area sometime between the 1953 and 1964 aerials. Woodley Road, today's Leucadia Boulevard, appears south of the Project Area beginning in 1949. The roadway as renamed and realigned in the late 1990s.

5.2 Sacred Lands File Results

The results of the Sacred Lands File search by the NAHC were received on March 11, 2020. The search of the Sacred Lands File failed to indicate the presence of Native American cultural resources in the Project Area. A record of all correspondence is provided in Attachment B.

5.3 Field Survey Results

ECORP surveyed the 21.48-acre Project Area on March 19, 2020. The Project Area consists of an agricultural facility comprising greenhouses, flower processing stations, and other appurtenant features (Figure 3, 4, and 5). Due to the developed nature of the current industrial agriculture facility, the pedestrian survey was conducted by moving through all accessible portions of the property and examining both permeable and impermeable surfaces and structures throughout. The Project Area is located on the edge of an urban/suburban environment and an open space preserve. The Project Area was primarily developed in the modern era (i.e., less than 50 years ago). Overall, the visibility throughout open areas of the Project Area was good (approximately 80 to 100 percent. However, these areas consisted of paved roadways, graded dirt roads, and artificial dirt drainages within the property. Visible soil is all imported fill or highly disturbed local material that has been graded or transported throughout the Project Area.

No archaeological resources were found as a result of the field survey; however, two historic-period cultural resources were identified as a result of the survey. FPF-001 is an historic-period Craftsman house that currently stands at the southwestern corner of the Project Area and FPF-002 is a portion of Leucadia Boulevard that falls within the Project Area boundaries, extending along the southern boundary of the property in an east-west orientation. In addition, there is the possibility that previously recorded resources are located within the Project Area that have been since obscured by pavement or other materials.



Figure 3. Center of Project Area (view west). March 19, 2020.



Figure 4. Overview from northwestern corner (view east). March 19, 2020.



Figure 5. Overview from northeastern corner (view southwest). March 19, 2020.

5.3.1 FPF-001: Historic-Period Craftsman House

The historic-period residence, the house and associated garage, located at 1101 Leucadia Boulevard, was formally recorded on March 19, 2020. Select photographs showing the best available angles of the exterior of each building are included as Figures 6 through 11.

The house represents the Craftsman style of architecture. The roof is a low-pitched, hip-on-gable roof, typical of the Craftsman style (Figure 6). There are exposed rafters as well as decorative false rafter beams under the gables that mimic triangular knee braces (Figure 7). Stylistic wooden beams extend below the gables of the eastern and western facing facades of the house (Figures 8 and 9). The residence has a raised concrete foundation. The residence and garage have horizontal wood siding. The southern façade of the house consists of the front entry, a wooden front door, with windows flanking either side, and overlooks Leucadia Boulevard.

A modern fence blocks the view of the residence from the roadway, Leucadia Boulevard. The south façade of the house (Figure 11) has a full-façade covered entry porch consisting of four chamfered posts connect to a banister which also have unelaborate, white square balusters. A secondary entrance is located on the western façade, between the unattached garage and the house. The windows on the residence appear to be the original windows, as they are aluminum-framed, single-pane windows with outer wooden casting. The eastern and western façades contain a gable wall brick chimney. There is a detached garage located directly east of the residence that was added to the property in the 1950s (Brian Grover, personal communication 2020). The detached garage consists of two off-center attached structures. The western portion of the garage has a front gable building with a metal garage door on the northern façade and a wooden garage door on the southern façade. The west side has a side entrance, and aluminum-framed windows. The eastern portion of the garage has corrugated metal siding on the rear portion and looks to have the original wooden walls on the northern portion of the structure.



Figure 6. Overview of the house and garage (view southeast). March 19, 2020.



Figure 7. Detail decorative rafters on west side of house (view southeast). March 19, 2020.



Figure 8. Overview of the east façade and chimney (view southwest). March 19, 2020.



Figure 9. Front porch, entryway, and eastside chimney (view west). March 19, 2020.



Figure 10. North façade of house (view south). March 19, 2020.



Figure 11. South façade of garage showing back entrance and corrugated metal siding (view north). March 19, 2020.

Property History

Outreach to the assessor's office and regional permitting office did not result in original building permits or assessor records for the house prior to its relocation on the property. Based on aerial photographs, the residence appears on the property sometime between 1953 and 1964, as the house and unattached garage can be seen on the 1964 aerial. At this time, the house and garage were owned by Walter Beljean and his wife Miti (Ruth), when they obtained the property sometime in the 1950s. Miti Beljean was the niece of Paul and Magdalena Ecke (The Paul Ecke Ranch, Inc. Business Records and Family Papers 2020). The Ecke Family historically owned the Project Area and harvested poinsettias in the Los Angeles area beginning in the 1900s. The Ecke Ranch house was located on Saxony Road, a few blocks from the Project Area. The residence was moved to its current location in the mid-1950s from a lot near downtown Encinitas by the Ecke Family. Walter worked at the Ecke Ranch prior to having children and he and his wife lived at the residence within the Project Area for more than 40 years. Walter and his wife completed additions to the residence as their family grew. The 1964 aerial shows that Sidonia Street is not present, and there are no other houses to the north of Leucadia Boulevard, at the time called Woodley Road. The road was renamed to Leucadia Boulevard sometime after 1997. No additional information relevant to the house prior to its move to the current location was uncovered during archival research.

Evaluation of FPF-001

Resource FPF-001 consists of a historic-period residential building. Review of historical topographic maps and aerials indicate that the building was likely constructed in its current location between 1953 and 1964.

The residential building was moved to the current location in the mid-1950s, where Walter and Miti Biljean lived and raised a family. They added the unattached garage and more bedrooms in the 1950s as their family grew.

The residential house does not contribute in any significant way to an event in local or regional history. No significant event is known to have occurred on the property and the house did not make a significant contribution to the development of the community. Any contribution the Ecke family business may have made to history is not strongly associated with the residence in any way as the home. The residence is approximately two miles northeast of the historic district of downtown Encinitas and is not associated with any historical context in the community or region. Therefore, the building is not related to the broad patterns of history and is not significantly associated with the development of Encinitas, Los Angeles County, or the nation and is not eligible under CRHR Criterion 1 or NRHP Criterion A.

The residence was moved to its current location in the 1950s; thus, historical records related to its occupants prior to the move is not well documented in the archival record. The Eche and the Beljean families are both associated with the residential building located on the property. The Beljean Family lived at the residence for over 40 years. The Eche and the Beljean family members were not historically significant and did not make any significant contribution to history that is portrayed through the residential house. No other known significant individuals have any direct association with this residential building. Therefore, the residential building is not associated with the lives of persons significant in the past and are not eligible under CRHR Criterion 2 or NRHP Criterion B.

This building is a common residential house with little architectural distinction. The building contains some elements of Craftsman architectural style, but it is not a good representation of that style in the San Diego or surrounding region. Though it's original construction date and architect is not known, it does not contain any distinctive features representative of high-style Craftsman architecture or of any architect known for Craftsman designs. The decorative elements of this building, such as the brackets and beams construction, are not unique among Craftsman style houses and do not appear to be hand-spun or carved by a master workman. The techniques employed for construction and maintenance of the building were not unique and were in existence prior to construction of the building, and therefore are not historically significant. The architecture of this building is not distinguishable from other residential buildings already in existence in Encinitas, particularly among those Craftsman style residences that are so popular and widely constructed in Southern California. Therefore, the residence is not eligible under CRHR Criterion 3 or NRHP Criterion C.

This house does not have the potential to yield information important in history. The archival research potential for the building has been exhausted, and the building's history is partially documented in the archival record. The residential building cannot provide additional historically important information, and there is no potential for the building to provide additional information that is not already represented in the archival record. As a result, the residential building is not eligible under NRHP Criteria D or CRHR Criterion 4.

The property visit indicated that the building retains integrity of materials, design, and association. The house and garage have been relocated to the current property in the 1950s from another lot in downtown

Encinitas by the Eche family, and no longer retain integrity of location. The residence is now located on Leucadia Boulevard and surrounded by development. The building itself remains structurally intact and has received typical maintenance and repairs, thus retaining many of its original materials. The building still serves as a single-family residence with an associated business. However, the building has been added onto and. due to its relocation, it no longer retains integrity of setting, workmanship, or feeling. In addition, some areas of the house are deteriorating due to its age, which reduces quality of workmanship.

Regardless of integrity, the residential building is not eligible for the CRHR and NRHP.

5.3.2 FPF-002: Leucadia Boulevard (Woodley Road)

FPF-002 is an historic-period road known today as Leucadia Boulevard. The road today is a four-lane road alignment that runs east to west at the southern edge of the Project Area. (Figure 5). Historically the road was known and labeled as Woodley Road. The road is a paved asphalt road that runs adjacent to developed parcels within Encinitas. Woodley Road, today's Leucadia Boulevard, first appears south of the Project Area beginning on aerial photographs taken 1949. The roadway was renamed and realigned in the late 1990s. Aerial photographs from 1997 shows the development of the intersection of Leucadia Boulevard and Quail Gardens Drive located southeast of the Project Area. As a result of the development of the intersection, Leucadia Boulevard, historically known as Woodley Road, has been improved and widened to a four-lane road.



Figure 12. FPF-002, Leucadia Boulevard overview (view southeast) March 19, 2020.

Evaluation of FPF-002

Resource FPF-002 consists of an historic-period road alignment known as Leucadia Boulevard. Review of historical topographic maps and aerials indicate that the road was likely constructed in the late 1940s with improvements in several decades through the 1900s.

As a result of archival research, this road was not identified in available historical documentation as having any significant historical associations and was not identified to have been associated with the Good Roads Movement. The road was originally developed for access to U.S. Highway 1 with no other significant purpose. This road was constructed after the City was developed and remains surrounded by rural and developed parcels. As such, the resource is not associated with any specific historic event or activity and is, therefore, not eligible under NRHP Criterion A or CRHR Criterion 1.

Similarly, the lack of historical documentation for this resource makes it clear that no specific individuals or groups of people significant in history are linked with this road. The resource does not demonstrate any association with the lives of persons significant in history and is, therefore, not eligible under NRHP Criterion B or CRHR Criterion 2.

This resource is currently a paved road that follows the similar alignment as it did when it was originally constructed prior to 1950. The original road may have been originally a dirt road which, through decades of maintenance and repairs, was converted to the paved road it is today. The road as it was originally, including its years of maintenance and changes, and as it is now, does not have any significant historical associations and its historical use, construction, improvement, and maintenance is typical among roads. It is not uniquely artistic or designed with any distinctive engineering characteristics. Therefore, this resource does not embody any distinctive characteristics of a type, period, or method of road construction; nor does it possess any artistic value. In addition, no archival evidence, or physical aspect of the road, indicates that the resource represents the work of a master road grader or specific construction crew or company. Therefore, this resource is not eligible under NRHP Criterion C or CRHR Criterion 3.

The information potential in historic roads lies in its alignment and route. The alignment and route of this road may not have been accurately mapped in historic times and therefore is not represented in the archival record. In a sense, a lot of historic-period roads only exist on historic maps as dashed approximated lines, and were it not for their physical presence on the landscape, we would have no other accurate record of its connectivity between points A and B. This road, however, was recorded relatively accurately in historical topographic maps and, thus the information regarding its historical route is provided in the archival record. Furthermore, this resource does not possess the potential for subsurface archaeological deposits, and, accordingly, was not tested. The resource does not possess the potential to yield any additional information regarding the relationship or functionality of roads or provide any information that isn't already represented in the archival record and, therefore, is not eligible under NRHP Criterion D or CRHR Criterion 4.

6.0 MANAGEMENT CONSIDERATIONS

6.1 Conclusions

ECORP evaluated the two historic-period cultural resources, FPF-001 and FPF-002, and found them not eligible for inclusion on the NRHP or CRHR under any criteria. Therefore, resources FPF-001 and FPF-002 are not Historical Resources under CEQA. No ground disturbance should occur until the lead agencies concur with this finding.

6.2 Likelihood for Subsurface Cultural Resources

The CHRIS records search results revealed that 16 pre-contact resources, three historic-period resources, one multicomponent resource, and one unknown resource are located within one mile of the Project Area. Surface sediments along the northern edge of the Project Area consist of Holocene surficial sediments atop earlier geological formations, and it is in these strata that pre-contact archaeological deposits have been previously identified and documented. Due to the presence of sediments contemporaneous with human occupation of the region and the presence of previously recorded pre-contact resources in the surrounding area, the potential for subsurface resources is considered moderate to high. ECORP recommends archaeological and Native American monitoring for any ground disturbance in native soils that may occur as part of the proposed Project so that any discoveries can be managed in accordance with state law as quickly as possible and without undue damage. In addition, the Lead Agency will require that any unanticipated (or post-review) discoveries found during Project construction be managed through a procedure designed to assess and treat the find as quickly as possible and in accordance with applicable state and federal law.

6.3 Recommended Mitigation Measures

6.3.1 Archaeological Monitoring

A qualified professional archaeologist, meeting or working under the direction of someone meeting the Secretary of the Interior's Professional Qualifications Standards should be retained to monitor all ground-disturbing activities associated with Project construction, including vegetation removal, clearing, grading, trenching, excavation, or other activities that will disturb original (pre-project) ground. The monitor must have the authority to temporarily pause activity at the location in the event of an unanticipated discovery, so that he or she can direct the procedures in the following section.

6.3.2 Native American Monitoring

A Native American monitor from a tribe that is traditionally and culturally affiliated with the Project Area (Kumeyaay) should be retained to monitor all ground-disturbing activities associated with Project construction, including vegetation removal, clearing, grading, trenching, excavation, or other activities that will disturb original (pre-project) ground. The Native American monitor should have the authority to temporarily pause activity at the location in the event of an unanticipated discovery, so that he or she can

coordinate with the Project archaeologist on the identification of a potential cultural resource and the Project archaeologist can direct the procedures in the following section.

6.3.3 Post-Review Discovery Procedures

If subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for pre-contact and historic archaeologist, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:

- If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately and no agency notifications are required.
- If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, he or she shall immediately notify the City and the applicable landowner. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures if the find is determined to be a Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines, or a Historic Property, as defined in 36 CFR 60.4. Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not a Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines; or 2) that the treatment measures have been completed to their satisfaction.
- If the find includes human remains, or remains that are potentially human, he or she shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the San Diego County Medical Examiner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented. If the Medical Examiner determines the remains are Native American and not the result of a crime scene, the Medical Examiner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC may mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

The lead agency is responsible for ensuring compliance with these mitigation measures because damage to significant cultural resources is in violation of CEQA and Section 106. Section 15097 of Title 14, Chapter 3, Article 7 of CEQA, *Mitigation Monitoring or Reporting*, "the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program."

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LIST OF ATTACHMENTS

Attachment A – Records Search Confirmation and Historical Society Coordination

Attachment B – Sacred Lands File Coordination

Attachment C – Project Area Photographs

Attachment D – ***CONFIDENTIAL*** Cultural Resource Site Locations and Site Records

ATTACHMENT A

Records Search Confirmation and Historical Society Coordination

California Historical Resources Information System

CHRIS Data Request Form

ACCESS AND USE AGREEMENT NO.: 34 **IC FILE NO.:** _____

To: South Coastal Information Center

Print Name: John O'Connor, Ph.D., RPA Date: Feb 26, 2020

Affiliation: ECORP Consulting, Inc.

Address: 3838 Camino del Rio North, Suite 370

City: San Diego State: CA Zip: 92108

Phone: 858-279-4040 Fax: 858-279-4043 Email: joconnor@ecorpconsulting.com

Billing Address (if different than above): _____

Project Name / Reference: Fox Point Farms EIR Project

Project Street Address: Sidonia Street and Leucadia Boulevard, Encinitas

County: San Diego

Township/Range/UTMs: T12S/R04W, T13S/R04W, Los Encinitos Land Grant; Lat. 33.067029, Long. -117.279248

USGS 7.5' Quad(s): Encinitas (1997, NAD83)

PRIORITY RESPONSE (Additional Fee): yes ○ / no ⊙

TOTAL FEE NOT TO EXCEED: $ 1,000

Special Instructions:

Please contact me in the event that this records search request will exceed the budget or if there will be an unexpected delay in the results. Thanks.

Information Center Use Only

Date of CHRIS Data Provided for this Request: _____

Confidential Data Included in Response: yes ○ / no ○

Notes: _____

CHRIS Data Request Form

Include the following information (mark as necessary) for the records search area(s) shown on the attached map(s) or included in the associated shapefiles.

NOTE: All digital data products are subject to availability - check with the appropriate Information Center.

1. **Map Type Desired:** Digital map products will be provided only if they are available at the time of this request. *Regardless of what is requested*, only hard copy hand-drawn maps will be provided for any part of the requested search area for which digital map products are not available at the time of this request**.**
There is an additional charge for shapefiles, whether they are provided with or without Custom GIS Maps.

Circle one map choice only

a) Custom GIS Maps b) Shapefiles c) Custom GIS Maps **and** Shapefiles d) Hard Copy Hand-Drawn Maps **only**

Any selection below left unmarked will be considered a "no. "

2a.

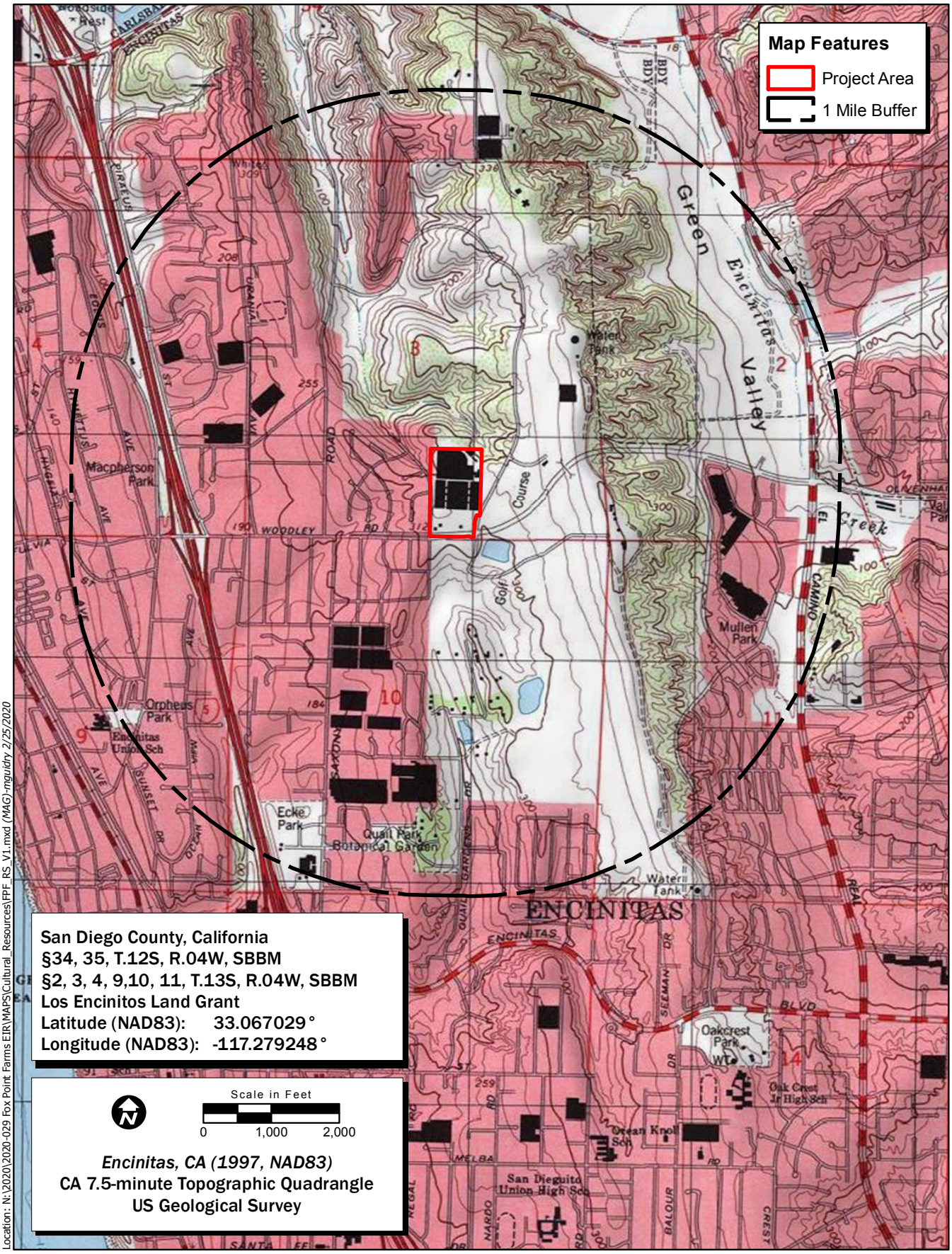
	Within project area	Within 1.0 mi radius
Mapped ARCHAEOLOGICAL Resource Locations+	yes ⊙/ no ○	yes ⊙/ no ○
Mapped NON-ARCHAEOLOGICAL Resource Locations	yes ⊙/ no ○	yes ⊙/ no ○
Mapped Report Locations+	yes ⊙/ no ○	yes ⊙/ no ○
Resource Database Printout* (list)	yes ⊙/ no ○	yes ⊙/ no ○
Resource Database Printout* (detail)	yes ⊙/ no ○	yes ○/ no ⊙
Report Database Printout* (list)	yes ⊙/ no ○	yes ⊙/ no ○
Report Database Printout* (detail)	yes ○/ no ⊙	yes ○/ no ⊙
Copy of ARCHAEOLOGICAL Resource Records+* PDF / Hard Copy	yes ⊙/ no ○	yes ⊙/ no ○
Copy of NON-ARCHAEOLOGICAL Resource Records* PDF / Hard Copy	yes ⊙/ no ○	yes ○/ no ⊙
Copy of Reports*: PDF / Hard Copy	yes ⊙/ no ○	yes ○/ no ⊙
	Only directory listing	Associated documentation
OHP Historic Properties Directory**		
within project area	yes ⊙/ no ○	yes ⊙/ no ○
within 1.0 mi radius	yes ⊙/ no ○	yes ○/ no ⊙
OHP Archaeological Determinations of Eligibility+		
within project area	yes ⊙/ no ○	yes ⊙/ no ○
within 1.0 mi radius	yes ⊙/ no ○	yes ○/ no ⊙
***California Inventory of Historical Resources* (1976):**		
within project area	yes ⊙/ no ○	yes ⊙/ no ○
within 1.0 mi radius	yes ⊙/ no ○	yes ○/ no ⊙

+ **In order to receive archaeological information, requestor must meet qualifications as specified in Section III of the current version of the California Historical Resources Information System Information Center Rules of Operation Manual**.
* These documents may be supplied as PDF files, if available
** Includes, but is not limited to, information regarding National Register of Historic Places, California Register of Historical Resources, California State Historical Landmarks, California State Points of Historical Interest, and historic building surveys.

CHRIS Data Request Form

2b. Listed below are sources of additional information that may be available at the Information Center. Indicate if a review and documentation of any of the following types of information is requested.

Caltrans Bridge Survey	yes ⊙/ no ○
Ethnographic Information	yes ○/ no ⊙
Historical Literature	yes ⊙/ no ○
Historical Maps	yes ⊙/ no ○
Local Inventories	yes ⊙/ no ○
GLO and/or Rancho Plat Maps	yes ⊙/ no ○
Shipwreck Inventory	yes ○/ no ⊙
Soil Survey Maps	yes ○/ no ⊙



Location: N:\2020\2020-029 Fox Point Farms EIR\MAPS\Cultural_Resources\FPF_RS_V1.mxd (MAG)-mguidry 2/25/2020

Map Date: 2/25/2020

iService Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Record Search

2020-029 Fox Point Farms EIR

South Coastal Information Center
San Diego State University
5500 Campanile Drive
San Diego, CA 92182-5320
Office: (619) 594-5682
www.scic.org
nick@scic.org

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM RECORDS SEARCH

Company: ECORP Consulting, Inc.

Company Representative: John O'Connor

Date Processed: 4/7/2020

Project Identification: Fox Point Farms EIR #2020-029

Search Radius: 1 mile

Historical Resources: YES

Trinomial and Primary site maps have been reviewed. All sites within the project boundaries and the specified radius of the project area have been plotted. Copies of the site record forms have been included for all recorded sites.

Previous Survey Report Boundaries: YES

Project boundary maps have been reviewed. National Archaeological Database (NADB) citations for reports within the project boundaries and within the specified radius of the project area have been included.

Historic Addresses: YES

A map and database of historic properties (formerly Geofinder) has been included.

Historic Maps: YES

The historic maps on file at the South Coastal Information Center have been reviewed, and copies have been included.

Summary of SHRC Approved CHRIS IC Records Search Elements	
RSID:	2704
RUSH:	no
Hours:	1
Spatial Features:	85
Address-Mapped Shapes:	yes
Digital Database Records:	92
Quads:	1
Aerial Photos:	0
PDFs:	Yes
PDF Pages:	99

This is not an invoice. Please pay from the monthly billing statement

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SD-00010	NADB-R - 1120010; Voided - DAVIS 03	1989	Davis, McMillan and Susan M. Hector	A Cultural Resources Assessment of the Community Bank Project, La Costa, San Diego County	RECON	37-006825, 37-006868, 37-011589
SD-00148	NADB-R - 1120148; Voided - BERRYS 17	1976	Berryman, Stanley R.	Archaeological Investigation: Quail Gardens.	Stanley R. Berryman	37-004388
SD-00338	NADB-R - 1120338; Voided - BISSELL 09	1988	Bissell Ronald M. and Rod Raschke	Cultural and Paleontological Resources Literature Review of the Carlsbad/ La Costa Project Area, San Diego County, California.	RMW Paleo Associates	37-004398, 37-004399, 37-004400, 37-004401, 37-004557, 37-004850, 37-004851, 37-004872
SD-00671	NADB-R - 1120671; Voided - GALLEGOS52	1986	Gallegos, Dennis, Dayle Cheever, and Stephan Van Wormer	A Cultural Resource Overview for the Encinitas Planning Area, Enicinitas, California.	WESTEC Services, Inc.	
SD-00981	NADB-R - 1120981; Voided - GROSS 12	1973	Gross, Tim	An Archaeological Survey of Vallecitos Development Area	San Diego State University	
SD-01009	NADB-R - 1121009; Voided - GALLEGOS36	1987	Gallegos, Dennis	Cultural Resource Testing Program for Archaeological Sites SDi-607, SDi-612, SDi-212, SDi-6825 and W-105 Carlsbad, California	WESTEC Services, Inc.	37-000212, 37-000607, 37-000612, 37-006825
SD-01163	NADB-R - 1121163; Voided - HECTOR 36A	1986	Hector, Susan	Resources Studies on the Ecke Ranch, Encinitas.	RECON	37-010646
SD-01325	NADB-R - 1121325; Voided - MCCOY 07	1979	McCoy. Lesley C. and Jay Thesken	An Archaeological/Historical Survey of the Proposed Green Valley Interceptor Alignment	WESTEC Services, Inc.	
SD-01474	NADB-R - 1121474; Voided - SRS 18	1982	Scientific Resource Surveys, Inc.	Cultural Resources Report on the Rancho La Costa Properties Located in the County of San Diego	Scientific Resource Surveys, Inc.	
SD-01922	NADB-R - 1121922; Voided - HANNA 07	1977	Hanna, David Jr	Saxony Road Lot Splits: An Archaeological Reconnaissance Near Leucadia, California	Archaeological Systems Management	
SD-01972	NADB-R - 1121972; Voided - SMITHB101A	1990	Smith, Brian F.	An Evaluation of Cultural Resources Within the Arroyo La Costa Project City of Carlsbad, California	Brian F. Smith and Associates	
SD-02012	NADB-R - 1122012; Voided - ENGLEHOR02	1980	Englehorn, Curtis Scott	Draft Focused Environmental Impact Report for the House of Mazada Property	Curtis Scott Englehorn	
SD-02273	NADB-R - 1122273; Voided - BERRYJ 31	1989	BERRYMAN, JUDY	ARCHAEOLOGICAL ASSESSMENT FOR THE PROPOSED HOME DEPOT PROJECT, ENCINITAS,CA	TMI	37-011027
SD-02349	NADB-R - 1122349; Voided - SMITHB 149	1992	SMITH, BRIAN F.	AN ARCHAEOLOGICAL SURVEY OF THE SAXONY ROAD LOT SPLIT PROJECT	BRIAN F. SMITH AND ASSOCIATES	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SD-02753	NADB-R - 1122753; Other - 1020; Voided - SRS 55	1993	SCIENTIFIC RESOURCE SURVEYS, INC	SUBSURFACE TESTING AND HISTORICAL ASSESSMENT OF THE 836 ACRE ENCINITAS RANCH, ENCINITAS, SAN DIEGO COUNTY, CALIFORNIA	SCIENTIFIC RESOURCE SURVEYS, INC	37-010646, 37-010647
SD-02908	NADB-R - 1122908; Other - 863; Voided - SRS 62	1989	SCIENTIFIC RESOURCE SURVEYS, INC.	CULTURAL AND PALEONTOLOGICAL RESOURCE INVESTIGATIONS OF THE ENCINITAS HOMESPROPERTY, SAN DIEGO, CALIFORNIA	SCIENTIFIC RESOURCE SURVEYS, INC.	
SD-03028	NADB-R - 1123028; Voided - SMITHB 252	1995	SMITH, BRIAN	RESULTS OF AN ARCHAEOLOGICAL EVALUATION OF CULTURAL RESOURCES WITHIN THE PROPOSED CORRIDOR FOR THE SAN ELIJO WATER RECLAMATION SYSTEM (PROJECT NO. C-06-4155-110)	BRIAN F. SMITH AND ASSOCIATES	37-013925, 37-013926
SD-03061	NADB-R - 1123061; Voided - SMITHB 262	1989	SMITH, BRIAN, STEPHEN BURKE, and DENNIS FISCHER	AN ARCHAEOLOGICAL SURVEY OF THE 280 ACRE GREEN VALLEY ZONE 23 PROPERTY	BRIAN F. SMITH AND ASSOCIATES	
SD-03173	NADB-R - 1123173; Voided - KYLE 66	1996	KYLE, CAROLYN AND DENNIS R GALLEGOS	CULTURAL RESOURCE SURVEY REPORT FOR THE INTERSTATE 5/LEUCADIA BOULDEVARD INTERCHANGE PROJECT, LEUCADIA, CALIFORNIA (INCLUDES CONFIDENTIAL APPENDIX	GALLEGO AND ASSOCIATES	
SD-03623	NADB-R - 1123623; Voided - HUNTKEV 04	1998	HUNT, KEVIN P. and BRIAN F. SMITH	RESULTS OF A DATA RECOVERY PROGRAM AT SITE SDI-13,172 THE LA COSTA GLEN PROJECT CARLSBAD, CALIFORNIA PROJECT NO. 970-717	CONTINUING LIFE COMMUNITIES, LLC	37-013172
SD-03678	NADB-R - 1123678; Other - CASE NO. 95-205 TPM; Voided - WADE 59	1996	WADE, SUE A	CULTURAL RESOURCE SURVEY AND SIGNIFICANCE EVALUATION FOR THE CHARRETTE SUBDIVISION (95-205 TENTATIVE PARCEL MAP), ENCINITAS, CALIFORNIA	MR ORMAN BLACKWELL	37-015583
SD-03851	NADB-R - 1123851; Voided - EIGHMEY12	2000	JAMES D. EIGHMEY, CHERYL BOWDEN-RENNA	ARCHAEOLOGICAL SURVEY FOR THE CITY OF ENCINITAS SEGMENT OF THE MULTIPLE HABITAT CONSERVATION PROGRAM ACQUISITION PROJECT (ER 2000-14) ENCINITAS, SAN DIEGO COUNTY, CALIFORNIA	KEA ENVIRONMENTAL, INC.	
SD-04111	NADB-R - 1124111; Voided - SEEMAN01	1982	Larry Seeman	Draft Environmental Impact Report Revised Parks and Recreation Element, Carlsbad, California	Larry Seeman	
SD-04131	NADB-R - 1124131; Voided - RECON 48	1981	Recon	Draft Environmental Impact Report for the Saxony Garden Apartments Project	RECON	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SD-04226	NADB-R - 1124226; Voided - MCCORKLE18	1994	MCCORKLE-APPLE, REBECCA	HISTORIC PROPERTY SURVEY REPORT FOR WIDENING LA COSTA AVENUE OVERCROSSING	KEA ENVIRONMENTAL	
SD-04634	NADB-R - 1124634; Voided - TRS1	1985	TRS CONSULTANTS	DRAFT ENVIRONMENTAL IMPACT REPORT MAJOR USE PERMIT 84-18	TRS CONSULTANTS	
SD-04640	NADB-R - 1124640; Voided - WESTEC29	1981	WESTEC	QUAIL GARDENS UNIT 1 DRAFT ENVIRONMENTAL IMPACT REPORT	WESTEC SERVICES,INC.	37-004380
SD-04711	NADB-R - 1124711; Other - SRS JOB# 1003; Voided - BOXT 01	1992	BOXT, MATTHEW A. and CHRISTINE BARRETTA	A PALEONTOLOGICAL AND CULTURAL RESOURCE INVESTIGATION OF THE ENCINITAS RANCH, SAN DIEGO COUNTY, CALIFORNIA	SCIENTIFIC RESOURCE SURVEY	37-000212, 37-000604, 37-000605, 37-000607, 37-000608, 37-000612, 37-000688, 37-000762, 37-000764, 37-001015, 37-004391, 37-004555, 37-005227, 37-006146, 37-006147, 37-006148, 37-010646, 37-010647, 37-011027, 37-011589, 37-012598
SD-04745	NADB-R - 1124745; Voided - VANBUEREN2	1988	Van Bueren, Thad	Arch. Assessment For The Batiquitos Loagoon Enhancement Project. San Diego County.	Van Bueren, Thad.	
SD-04804	NADB-R - 1124804; Voided - SRS66	1982	SCIENTIFIC RESOURCES SURVEYS	CULTURAL RESOURCES REPORT ON THE RANCHO LA COSTA PROPERTIES LOCATED IN THE COUNTY OF SAN DIEGO	SCIENTIIFC RESOURCES SURVEYS, INC.	37-000612, 37-000692, 37-004860, 37-006819, 37-006824, 37-006867
SD-06089	NADB-R - 1126089; Voided - SMITHD 11	1973	SMITH, DAVID	ARCHAEOLOGICAL SALVAGE OF THE FOX POINT SITE	DAVID D. SMITH & ASSOC.	
SD-06643	NADB-R - 1126643; Voided - KYLE 129	1996	KYLE, CAROLYN and DENNIS GALLEGOS	NEGATIVE ARCHAEOLOGICAL SURVEY INTERSTATE 5 & LEUCADIA BLVD	GALLEGOS & ASSOC.	
SD-06768	NADB-R - 1126768; Voided - ERCE23	1989	ERC	CULTURAL RESOURCE SURVEY AND TESTING OF A DURATION OF SITE SDI-4872 (W-982) FOR THE OLIVENHAIN ROAD ALIGNMENT, CARLSBAD, CALIFORNIA	ERC	37-004872
SD-07607	NADB-R - 1127607; Voided - WADE 121	1999	WADE, SUE	ENCINITAS/LA COSTA AVENUE PROPERTY: CULTURAL RESOURCE REVIEW AND SITE UPDATE	HERITAGE RESOURCES	37-006868, 37-011589
SD-09361	NADB-R - 1129361; Other - 11A0398; Voided - BYRD15	2002	Byrd, Brian F. and Collin O'Neill	Archaeological Survey Report for the Phase I Archaeological Survey along Interstate 5 San Diego County, CA.	ASM, Inc	37-000606, 37-004552, 37-004553, 37-006851, 37-007296, 37-012120, 37-013484
SD-09721	NADB-R - 1129721; Voided - PIERSON138	2005	Pierson, Larry J.	A Historical Architectural Evaluation for the East Saxony Portion of the Encinitas Ranch Specific Plan: SPA EIR	Brian F. Smith & Associates	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SD-09977	NADB-R - 1129977; Voided - MAYR78	1973	MAY, RONALD	ARCHAEOLOGICAL SURVEY OF THE PROPOSED FOX POINT DEVELOPMENT TM3251	DAVID D. SMITH AND ASSOCIATES	
SD-10118	NADB-R - 1130118; Other - 2093; Voided - ROBBIM156	2006	ROBBINS-WADE, MARY	ARCHAEOLOGY SURVEY, NORTHWEST QUADRANT RECYCLED WATER PIPELINES PROJECT ENCINITAS AND CARLSBAD, SAN DIEGO COUNTY, CALIFORNIA	AFFINIS	37-004402, 37-004409, 37-004845, 37-008696, 37-012892
SD-10350	NADB-R - 1130350; Voided - ROBBIM167	2005	ROBBINS-WADE, MARY	ARCHAEOLOGICAL RESOURCES SURVEY, BATIQUITOS BLUFFS ENCINITAS, SAN DIEGO COUNTY, CALIFORNIA	AFFINIS	37-006868
SD-10351	NADB-R - 1130351; Voided - ROBBIM168	2006	ROBBINS-WADE, MARY, G. TIMOTHY GROSS, MATT SIVBA, and STEPHEN R. VAN WORMER	ARCHAEOLOGICAL RESOURCES EVALUATION: CA-SDI-6868 BATIQUITOS BLUFFS ENCINITAS, SAN DIEGO COUNTY, CALIFORNIA	AFFINIS	37-006868
SD-11144	NADB-R - 1131144; Voided - HECTOR180	2007	HECTOR, SUSAN	ENCINA-PENASQUITOS TRANSMISSION LINE RECORDS SEARCH	ASM AFFILIATES, INC.	
SD-11202	NADB-R - 1131202; Voided - MCGINNIS78	2007	MCGINNIS, PATRICK	CULTURAL RESOURCE SSURVEY FOR THE BAHLMANN/BROWN PROPERTY, 645 SAXONY ROAD, ENCINITAS, CALIFORNIA	TIERRA ENVIRONEMTNAL SERVICES	
SD-11761	NADB-R - 1131761; Voided - DOMINICI67	2007	DOMINICI, DEB	HISTORIC PROPERTY SURVEY REPORT, I-5 NORTH COAST WIDENING PROJECT	CALTRANS	
SD-11874	NADB-R - 1131874; Voided - BONNEW178	2008	BONNER, WAYNE H. and MARNI AISLIN-KAY	CULTURAL RESOURCES RECORDS SEARCH AND SITE VISIT RESULTS FOR VERIZON WIRELESS CANDIDATE "QUAIL GARDNES," 1275 #C QUAIL GARDENS DRIVE, ENCINITAS, SAN DIEGO COUNTY, CALIFORNIA	MICHAEL BRANDMAN ASSOCIATES	
SD-12204	NADB-R - 1132204; Voided - GARDNJ02	2009	GARDNER, JILL	ARCHAEOLOGICAL MONITORING FOR THE SDG&E ENCINA-PENASQUITOS 230 KV TRANSMISSION LINE PROJECT FROM CARLSBAD TO CARMEL VALLEY, AND GUARD STRUCTURE POLE FIELD CHECKS FOR THE SDG&E ENCINA-PENASQUITOS RECONDUCTOR PROJECT	ASM AFFILIATES	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SD-12422	NADB-R - 1132422; Voided - NIGHAS68	2001	NI GHABHLAIN, SINEAD and DREW PALLETTE	A CULTURAL RESOURCES INVENTORY FOR THE ROUTE REALIGNMENT OF THE PROPOSED PF. NET / AT&T FIBER OPTICS CONDUIT OCEANSIDE TO SAN DIEGO, CALIFORNIA	ASM AFFILIATES, INC.	
SD-13283	NADB-R - 1133283; Voided - RUSTONR01	2011	RUSTON, RACHEL S.	CULTURAL RESOURCES REVIEW AND RECORDS SEARCHES FOR LINE 3010 OPERATIONS & MAINTENANCE POTHOLING AND PHASE I & 2 PIPELINE INTEGRITY/ RETROFIT ACTIVITIES	ASM AFFILIATES	37-000608, 37-000611, 37-000689, 37-005369, 37-014133
SD-13301	NADB-R - 1133301; Voided - LOFTUSS32	2011	LOFTUS, SHANNON	AT&T SITE NS0024 CART BARN LTE OPTIMAL 1285 QUAIL GARDENS DRIVE ENCINITAS, SAN DIEGO COUTNY, CALIFORNIA 92024	ACE ENVIRONMENTAL, LLC	
SD-13797	NADB-R - 1133797; Voided - LORWEB01	2012	LOREN-WEBB, BARBARA	NEGATIVE FINDINGS LETTER REPORT REGARDING APNS 254-351-30-00, 254-351-31-00, AND 254-351-32-00, AN APPROXIMATE 9.09 ACRE PROPERTY IN THE CITY OF ENCINITAS, COUNTY OF SAN DIEGO, CALIFORNIA	L&L ENVIRONMENTAL, INC.	
SD-13798	NADB-R - 1133798; Voided - LORWEB02	2012	LOREN-WEBB, BARBARA	FINAL REPORT PALEONTOLOGICAL MITIGATION MONITORING ON APNS 254-351-30-00, 254-351-31-00, AND 254-351-32-00 AN APPROXIMATE 9.09 ACRE PROPERTY IN THE CITY OF ENCINITAS, COUNTY OF SAN DIEGO, CALIFORNIA	L&L ENVIRONMENTAL, INC.	
SD-13916	NADB-R - 1133916; Voided - CALTRANS88	2012	CALTRANS	INTERSTATE 5 NORTH COAST CORRIDOR PROJECT SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT REPORT/ ENVIRONEMENTAL IMPACT STATEMENT	CALTRANS	
SD-14002	NADB-R - 1134002; Voided - BISSER19	1995	BISSELL, RONALD M.	CULTURAL RESOURCES MONITORING OF THE SOUTHERN PORTION OF THE ENCINITAS HOME DEPOT PROJECT, EL CAMINO REAL, ENCINITAS SAN DIEGO COUNTY, CALIFORNIA	RMW PALEO ASSOCIATES, INCORPORATED	37-012891
SD-14495	NADB-R - 1134495; Voided - CALTRANS89	2013	CALTRANS	INTERSTATE 5 NORTH COAST CORRIDOR PROJECT FINAL ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL IMPACT STATEMENT AND SECTION 4(F) EVALUATION	CALTRANS	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SD-14590	NADB-R - 1134590; Voided - MCGINNI108	2007	MCGINNIS, PATRICK	DRAFT CULTURAL RESOURCES SURVEY FOR THE BAHLMANN/ BROWN PROPERTY 645 SAXONY ROAD ENCINITAS, CALIFORNIA	TIERRA ENVIRONMENTAL SERVICES	37-000605, 37-004490, 37-004548, 37-004658, 37-010646, 37-010647, 37-024865, 37-027115
SD-14615	NADB-R - 1134615; Voided - CALTRANS90	2013	CALTRANS	I-5 NORTH CORRIDOR PROJECT SUPPLEMENTALS	CALTRANS	
SD-15872	NADB-R - 1135872	2014	Carrie D. Wills	CULTURAL RESOURCE RECORDS SEARCH AND SITE VISIT RESULTS FOR VERIZON WIRELESS CANDIDATE 'SOUTH QUAIL', 1295 PASEO DE LAS FLORES, ENCINITAS, SAN DIEGO COUNTY, CALIFORNIA	First Carbon Solutions	
SD-16127	NADB-R - 1136127	2008	Deb Dominici and Don Laylander	2007 CULTURAL RESOURCES TREATMENT PLAN NORTH COAST INTERSTATE 5 CORRIDOR	CALTRANS	
SD-16131	NADB-R - 1136131	2013	Michelle Blake	SIXTH SUPPLEMENTAL HISTORIC PROPERTY SURVEY REPORT (HPSR): REVISED AREA OF POTENTIAL EFFECTS (APE) I-5 NORTH COAST CORRIDOR	Caltrans	
SD-16258	NADB-R - 1136258	2013	Shannon Davis	HISTORIC RESOURCE EVALUATION FOR THE ECKE RANCH OFFICE BUILDING, ENCINITAS, SAN DIEGO COUNTY, CALIFORNIA	ASM Affiliates	
SD-17162	NADB-R - 1137162	2016	WOLF, SCOTT	NEGATIVE CULTURAL MONITORING REPORT FOR THE ENCINITAS CREEK IMPROVEMENT PROJECT, CITY OF ENCINITAS, SAN DIEGO COUNTY, CALIFORNIA	DUDEK	
SD-17205	NADB-R - 1137205	2016	ROBBINS-WADE, MARY, Kristina Davison, and Nicole Falvey	CULTURAL RESOURCES SURVEY AND ASSESSMENT 964 URANIA AVENUE, ENCINITAS, SAN DIEGO COUNTY, CALIFORNIA	HELIX Environmental Planning, Inc.	37-035494
SD-17624	NADB-R - 1137624	2018	SMITH, BRIAN F.	CULTURAL RESOURCES MONITORING REPORT FOR THE ALCOVE PROJECT, CITY OF ENCINITAS, SAN DIEGO COUNTY, CALIFORNIA	BRIAN F. SMITH AND ASSOCIATES, INC.	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SD-18047	NADB-R - 1138047	2016	PHAM, ANGELA	PHASE I HISTORICAL RESOURCES INVENTORY REPORT FOR THE RECYCLED WATER PIPELINE AND FACILITY UPGRADES PROJECT, SAN DIEGO COUNTY, CALIFORNIA	DUDEK	
SD-18051	NADB-R - 1138051	2016	DWYER, AMANDA	REQUEST FOR CONCURRENCE ON "SECTION 106" COMPLIANCE WITH A FINDING OF "NO HISTORIC PROPERTIES AFFECTED" FOR THE CULTURAL RESOURCES INVENTORY AND ELIGIBILITY OF THE SOUTHERN THIRD OF SITE CA-SDI-13,903 FOR THE RECYCLED WATER PIPELINE AND FACILITY UPGRADES	STATE WATER RESOURCES CONTROL BOARD	

ATTACHMENT B

Sacred Lands File Coordination

Sacred Lands File & Native American Contacts 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

Information Below is Required for a Sacred Lands File Search

Project: Fox Point Farms EIR

County: San Diego

USGS Quadrangle Name: Encinitas, CA (1997, NAD83)

Township: T12S; T13S **Range:** R4W; R4W **Section(s):** 34, 35; 2, 3, 4, 9, 10, 11

Company/Firm/Agency: ECORP Consulting, Inc.

Street Address: 3838 Camino del Rio North, Suite 370

City: San Diego **Zip:** 92108

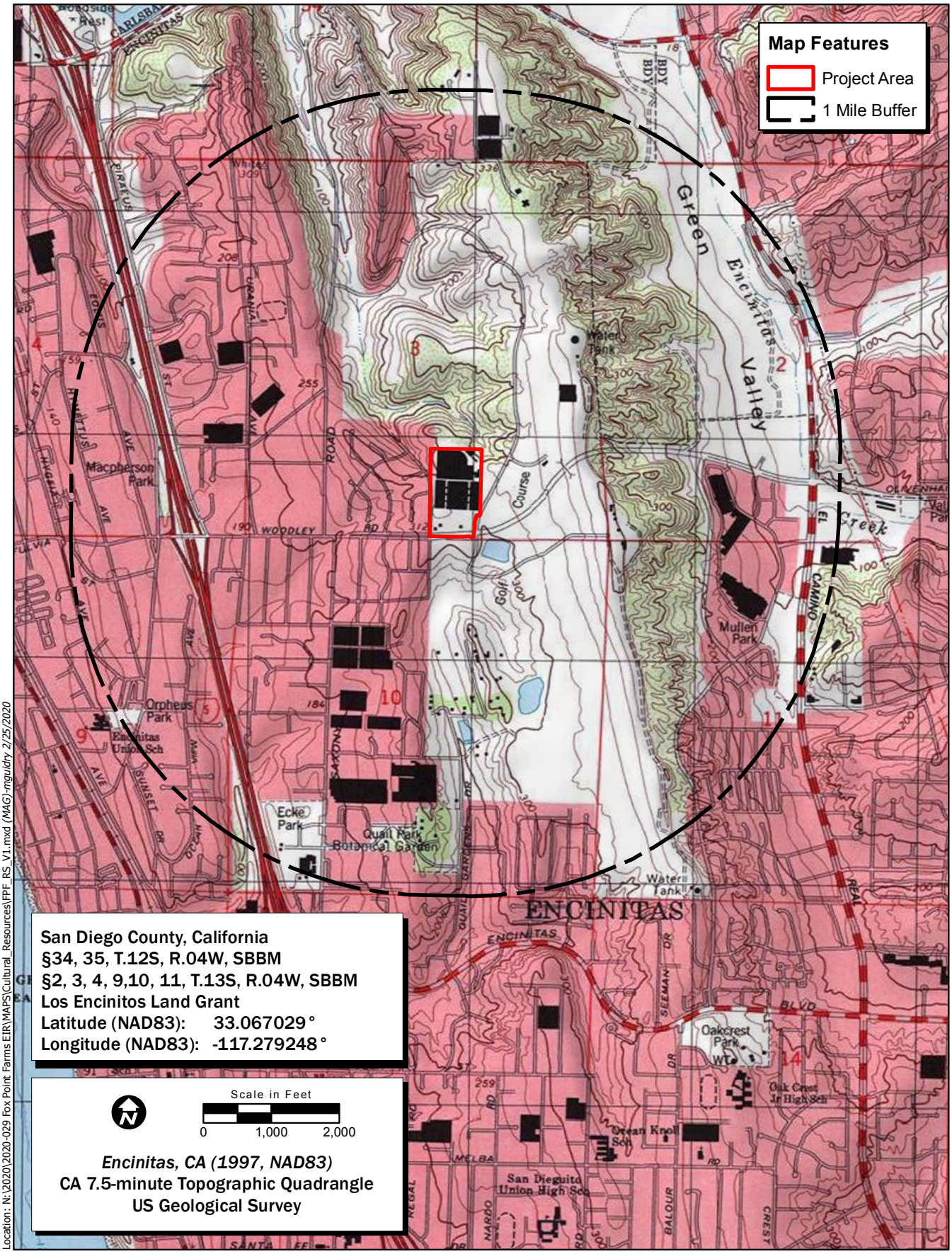
Phone: 858-279-4040

Fax: 858-279-4043

Email: joconnor@ecorpconsulting.com

Project Description:

The project will involve the redevelopment of an existing agricultural facility into a housing and agriculture community.



Location: N:\2020\2020-029 Fox Point Farms EIR\MAPS\Cultural_Resources\FPF_RS_V1.mxd (MAG)-mguidry 2/25/2020

Map Date: 2/25/2020

iService Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Record Search

2020-029 Fox Point Farms EIR

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
Marshall McKay
Wintun

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
Joseph Myers
Pomo

COMMISSIONER
Julie Tumamait-Stenslie
Chumash

COMMISSIONER
[**Vacant**]

EXECUTIVE SECRETARY
Christina Snider
Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

March 11, 2020

John O'Connor
ECORP

Via Email to: joconnor@ecorpconsulting.com

Re: Fox Point Farms EIR Project, San Diego County

Dear Mr. O'Connor:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

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

Sincerely,

Steven Quinn
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
San Diego County
3/11/2020

Barona Group of the Capitan Grande
Edwin Romero, Chairperson
1095 Barona Road — Diegueno
Lakeside, CA, 92040
Phone: (619) 443 - 6612
Fax: (619) 443-0681
cloyd@barona-nsn.gov

Campo Band of Diegueno Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 — Diegueno
Campo, CA, 91906
Phone: (619) 478 - 9046
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rgoff@campo-nsn.gov

Ewiiaapaayp Band of Kumeyaay Indians
Robert Pinto, Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
wmicklin@leaningrock.net

Ewiiaapaayp Band of Kumeyaay Indians
Michael Garcia, Vice Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
michaelg@leaningrock.net

Iipay Nation of Santa Ysabel
Clint Linton, Director of Cultural Resources
P.O. Box 507 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 803 - 5694
cjlinton73@aol.com

Iipay Nation of Santa Ysabel
Virgil Perez, Chairperson
P.O. Box 130 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 765 - 0845
Fax: (760) 765-0320

Inaja-Cosmit Band of Indians
Rebecca Osuna, Chairperson
2005 S. Escondido Blvd. — Diegueno
Escondido, CA, 92025
Phone: (760) 737 - 7628
Fax: (760) 747-8568

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612 — Diegueno
Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817
epinto@jiv-nsn.gov

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas,
P.O. Box 775 — Kwaaymii
Pine Valley, CA, 91962 — Diegueno
Phone: (619) 709 - 4207

La Posta Band of Diegueno Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road — Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

La Posta Band of Diegueno Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road — Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302 — Diegueno
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Fox Point Farms EIR Project, San Diego County.

Native American Heritage Commission
Native American Contact List
San Diego County
3/11/2020

Mesa Grande Band of Diegueno Mission Indians
Michael Linton, Chairperson
P.O Box 270 Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 782 - 3818
Fax: (760) 782-9092
mesagrandeband@msn.com

San Pasqual Band of Diegueno Mission Indians
Allen Lawson, Chairperson
P.O. Box 365 Diegueno
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
allenl@sanpasqualtribe.org

San Pasqual Band of Diegueno Mission Indians
John Flores, Environmental Coordinator
P. O. Box 365 Diegueno
Valley Center, CA, 92082
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Sycuan Band of the Kumeyaay Nation
Cody Martinez, Chairperson
1 Kwaaypaay Court Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 2613
Fax: (619) 445-1927
ssilva@sycuan-nsn.gov

Sycuan Band of the Kumeyaay Nation
Kristie Orosco, Kumeyaay Resource Specialist
1 Kwaaypaay Court Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 6917

Viejas Band of Kumeyaay Indians
Ernest Pingleton, Tribal Historic Officer, Resource Management
1 Viejas Grade Road Diegueno
Alpine, CA, 91901
Phone: (619) 659 - 2314
epingleton@viejas-nsn.gov

Viejas Band of Kumeyaay Indians
John Christman, Chairperson
1 Viejas Grade Road Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Fox Point Farms EIR Project, San Diego County.

ATTACHMENT C

Project Area Photographs

State of California — The Resources Agency **Primary #**
DEPARTMENT OF PARKS AND RECREATION **HRI#**

PHOTOGRAPH RECORD

Trinomial

Page 1 of 1 **Resource/Project Name:** Fox Point Farms **Year** 2020
Camera: iPhone 6 Lens Size:
Film Type and Speed: Digital Negatives Kept at: ECORP Consulting, Inc.

Mo.	Day	Time	Exp./Frame	Subject/Description	View Toward	Accession #
03	19	2:05	001	Overview from northeast corner	W/SW	001
03	19	2:10	002	Overview from northwest corner	E	002
03	19	2:10	003	Western edge from northwest corner	S	003
03	19	2:20	004	Interior of greenhouse	SE	004
03	19	2:20	005	Interior of greenhouse	NE	005
03	19	2:25	006	Southern boundary from southwest	E	006
03	19	2:35	007	Garage	SW	007
03	19	2:35	008	Garage	SE	008
03	19	2:35	009	Northern end of house	S	009
03	19	2:35	010	Western side of house and chimney and eves	S/SE	010
03	19	2:35	011	Westerns side of house	SE	011
03	19	2:40	012	Foundation change	NE	012
03	19	2:40	013	Foundation change	NE	013
03	19	2:45	014	Eves and window on western side	NE	014
03	19	2:45	015	Side patio on northern side	SE	015
03	19	2:45	016	Side patio on northern side	S	016
03	19	2:45	017	Garage	NW	017
03	19	2:45	018	Garage from south	N	018
03	19	2:45	019	Side patio	NW	019
03	19	2:45	020	Second chimney and eves on eastern side of house	SW	020
03	19	2:45	021	Old front porch on southern side of house	W	021
03	19	2:45	022	Second chimney	NW	022
03	19	2:45	023	Old front porch	NW	023
03	19	2:45	024	House and garage	NW	024
03	19	2:45	025	Complex	SW	025
03	19	2:45	026	Complex	SE	026
03	19	2:50	027	Western side	E	027
03	19	2:50	038	Leucadia Blvd from Sidonia	E	028
03	19	2:50	029	House from south	N	029
03	19	2:50	030	Intersection Leucadia and Quail Gardens Road	SE	030
03	19	2:50	031	Leucadia Blvd	W	031
03	19	2:50	032	Quail Garden from Leucadia	NE	032
03	19	2:50	033	Eastern side	N	033
03	19	2:50	034	Center of project area	W	034


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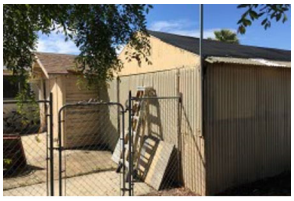

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EDCO






EDCO










































LANE




Quail Gardens Dr







Confidential Cultural Resource Site Locations and Site Records

This Attachment contains information on the specific location of cultural resources. This information is not for publication or release to the general public. It is for planning, management and research purposes only. Information on the specific location of pre-contact and historic sites is exempt from the Freedom of Information Act and California Public Records Act.

APPENDIX F GREENHOUSE GAS ASSESSMENT

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GREENHOUSE GAS ASSESSMENT

Fox Point Farms
Case Nos. MULTI-3524-2019; CPP-3525-2019; SUB-3526-2019; DR-3528-2019; and CDPNF-3529-2019

City of Encinitas, CA

Prepared For:

Michael Baker International
5050 Avenida Encinas, Suite 260
Carlsbad, CA 92008

Prepared By:

Ldn Consulting, Inc.
42428 Chisolm Trail
Murrieta, CA 92562

August 18, 2020

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California Environmental Quality Act (CEQA)

Carbon Dioxide (CO2)

Cubic Yards (CY)

Environmental Protection Agency (EPA)

Green House Gas (GHG)

International Residential Code (IRC)

Low Carbon Fuel Standard (LCFS)

Methane (CH4)

Nitrous Oxide (N2O)

San Diego Air Basin (SDAB)

San Diego Air Pollution Control District (SDAPCD)

South Coast Air Quality Management District (SCAQMD)

Senate Bill 97 (SB97)

Vehicle Miles Traveled (VMT)

EXECUTIVE SUMMARY

This greenhouse gas assessment was prepared according to guidelines established within the California Global Warming Solutions Act of 2006 – Assembly Bill 32 (AB32), Senate Bill 97 (SB97), California Environmental Quality Act (CEQA) and SB32. Greenhouse Gases (GHGs) analyzed in this study are Carbon Dioxide (CO_2), Methane (CH_4), and Nitrous Oxide (N_2O). To simplify GHG calculations, both CH_4 and N_2O are converted to equivalent amounts of CO_2 and are identified as carbon dioxide equivalent (CO_2e).

The project site is located in the northwest corner of the Leucadia Boulevard/Quail Gardens Drive intersection, in the Leucadia community of Encinitas, in central coastal San Diego County. The community would be situated on a 21.48-acre site and would consist of 53 for-sale cottages/carriage units/townhomes, 197 apartments, edible landscaping, community gardens, trails, a bocce court, social spaces, a community library, and a community recreation center. The project would also include a shared public/private agricultural amenity area including a farm-to-table restaurant, farm stand, event lawns, discovery garden, greenhouse and community event space, and an outdoor education patio. Lastly, the northern portion of the project site would remain in agricultural use, serving as an organic farm operation. All phases (i.e. demolition, grading and construction) of the proposed project are anticipated to be complete sometime in late 2023 and full buildout operations are expected in 2024.

Project design features (PDFs) have been included in this project and are identified in Section 1.4 of this report. The applicant has agreed to implement all PDFs, which will be included in the proposed project's Conditions of Approval (COA).

During construction of the project, it is expected that approximately 1,133.98 Metric Tons (MT) of CO_2e would be generated. Given this, the project would generate 37.80 MT CO_2e per year over the amortized 30-year minimum life of the project. After construction and during operations of the project, a combined annual GHG emissions of 1,344.72 MT CO_2e is expected. The project is consistent with the City's General Plan (Housing Element), and the project is also consistent with the City's Climate Action Plan (CAP) measures to reduce GHG emissions. These measures have been included as project design features.

The project was also analyzed using an alternative approach for consistency with SB 32 using a project-specific, locally appropriate efficiency-based threshold based on forecasted service population (residents plus employment) and the allowable emissions which the City must achieve in 2030 to be compliant with SB 32. Based on this approach, the project would be required to generate fewer emissions per service population (SP) than 3.1 MT CO_2e. The project was found to generate 1,344.72 MT CO_2e, after implementation of PDFs, from both annualized construction and annual operations GHG emissions. Based on an estimated project population of 648 persons,

the project would have a projected GHG emission rate of 2.08 MT CO_2e per SP or (1,344.72 MT CO_2e/648 persons). Based on this, the proposed project would generate fewer emissions than a City-specific localized efficiency metric of 3.1 MT CO_2e per SP. Given this, the project would be found to generate a less than significant GHG impact.

1.0 INTRODUCTION

1.1 Purpose of this Study

The purpose of this GHG assessment is to provide documentation in support of the City's CEQA compliance requirement to analyze a project's contribution to greenhouse gas emissions. The proposed project's GHG emissions impacts are analyzed based on the recommended thresholds provided in Appendix G of the CEQA Guidelines which are (14 CCR 15000 et seq.):

1. *Will the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*
2. *Will the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

1.2 Project Location

The project site is located at the northwest corner of the Leucadia Boulevard/Quail Gardens Drive intersection, in the Leucadia community of Encinitas, in central coastal San Diego County. The San Diego County Assessor's Parcel Number (APN) for the property is 254-612-12-00. The Encinitas Ranch Golf Course is located to the east of the project site. Leucadia Boulevard forms the southern boundary of the subject property. Existing single-family residential development lies west of the project site. The Magdalena Ecke Open Space Preserve borders the site along the entire northern property boundary.

The site is within walking/biking distance to Capri Elementary School (1.25 miles), shopping centers on El Camino Real (0.75 miles), Paul Ecke Sports Park and YMCA (0.85 miles), and is 0.7 miles from the Leucadia Boulevard/Interstate 5 interchange. Transit stops are located on Leucadia Boulevard immediately adjacent to the site, providing residents with an affordable means of transportation to these community resources and jobs. Indian Head Canyon is located north of the property. A general project vicinity map is shown in Figure 1-A.

1.3 Project Description

The Fox Point Farms project proposes the development of an "agrihood" community on a 21.48-acre site located at 1150 Quail Gardens Drive. The property would be subdivided into four lots. Lot 1 would consist of 197 apartments, edible landscaping, community gardens, trails, a bocce court, social spaces, a community reading room, and a community recreation center. Lot 2 would consist of a shared public/private agricultural amenity area including a 3,500 square foot (SF) farm-to-table restaurant, farm stand, event lawns, discovery garden, greenhouse and community event space, and an outdoor education patio. Lot 3 would consist

of an organic farm operation on approximately 5.5 acres consistent with the existing land use, but converting above-ground flower growing operations into field row crops. Finally, Lot 4 would consist of 53 for-sale cottages/carriage units/townhomes. The proposed site development plan is shown on Figure 1-B.

It is expected that the project would begin construction in 2021, beginning with demolition of existing structures, and be completed in 2023, with full occupancy and operations expected in 2024. During the demolition phase it is expected that approximately 10,500 tons of debris would be generated through demolishing the onsite residential unit and greenhouses, which is assumed to be exported offsite; however, salvageable materials may be reused onsite. The project also anticipates importing up to approximately 10,000 cubic yards (CY) of topsoil onsite for the organic farm field to amend the existing soil; however, if existing soil is determined to be suitable, this import would not occur.

The project site is one of 15 sites included in the City of Encinitas Housing Element Update, which was adopted by the City of Encinitas on March 13, 2019. Subsequently, on June 13, 2019, the California Coastal Commission unanimously approved the Local Coastal Program Amendment (LCPA) associated with the City's Housing Plan Update 2019. On July 10, 2019, the City Council held a public hearing to review and consider the amendment specified in Ordinance No. 2019-08 and introduced and adopted Ordinance No. 2019-08, accepting the Coastal Commissions LCPA as amended. Finally, on October 8, 2019, the California Department of Housing and Community Development (HCD) certified the City's Housing Element. As part of these approvals, the project site was designated with an R-30 overlay and allocated between 246 units and 295 units.

The analysis includes a "Sidonia Secondary Access Option" to the proposed project which is limited to the project ingress/egress access only. Both the proposed project and the Option call for identical construction requirements, and the site development plan would be the same. The proposed project and Option are described as follows:

Proposed Project

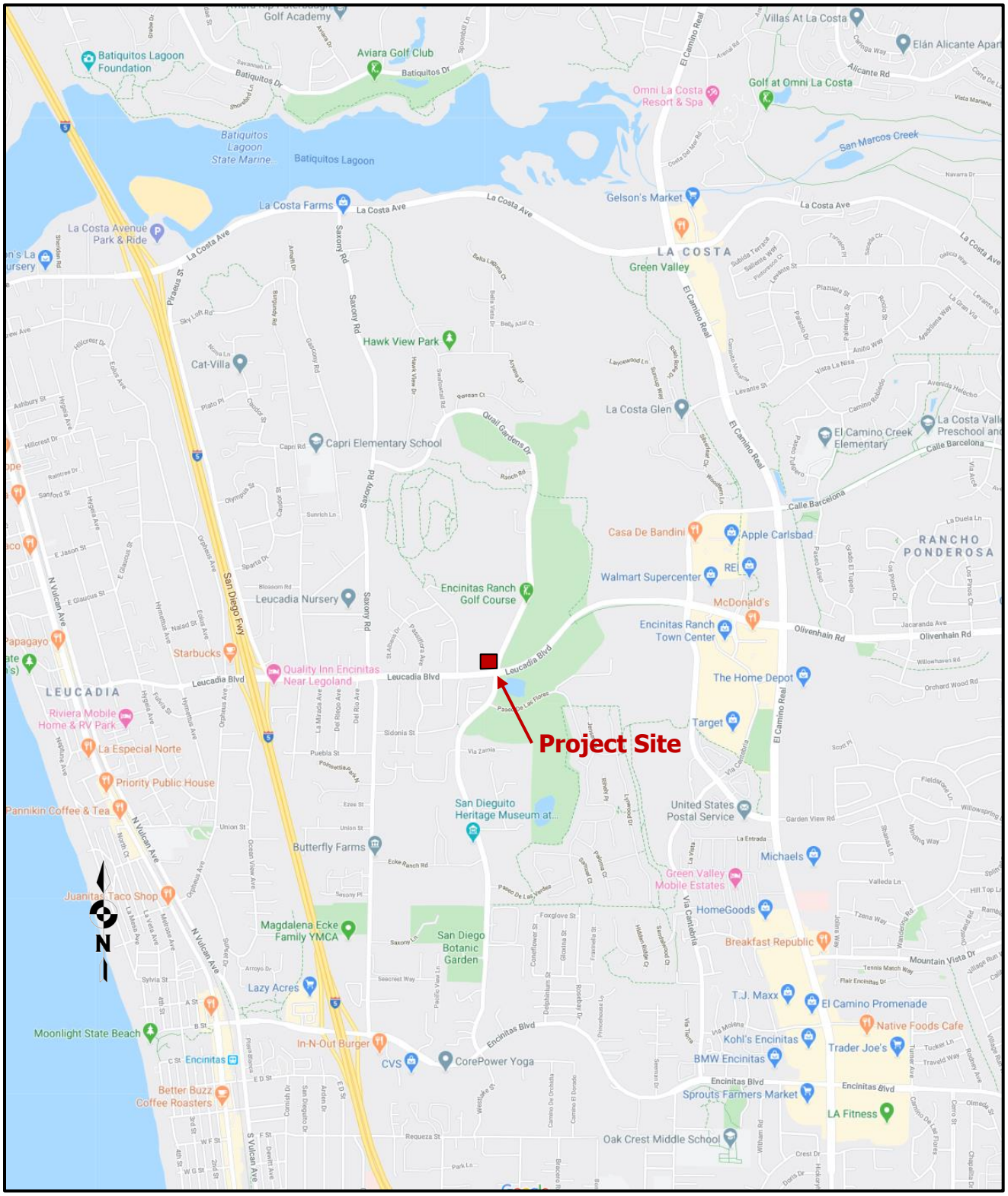
1. *Full access at Quail Gardens Drive*
2. *Emergency access only along Sidonia Street*

Sidonia Secondary Access Option

1. *Full access at Quail Gardens Drive*
2. *Full access at Sidonia Street*

Since this would not alter the GHG emission generation, the alternatives are considered the same and are analyzed as such within this GHG assessment.

Figure 1-A: Project Vicinity Map



Source: (Google, 2020)

Figure 1-B: Proposed Project Site Plan



Source: (Nolen Communities, 2020)

1.4 Project Design Features

The proposed project would implement Project Design Features (PDFs) specifically chosen to reduce both greenhouse gas and air quality emissions. These PDFs would promote sustainability through site design that would conserve energy, water, open space, and other natural resources, and would become specific Conditions of Approval (COA) by the City of Encinitas:

1. The project would install low flow water fixtures in all residential units.
2. All lighting within the project will be designed using LED technology for both indoor and outdoor areas.
3. The project would provide separate waste containers to allow for simpler material separations, or the project would pay for a waste collection service that recycles the materials in accordance with AB 341 to achieve a 75% waste diversion. 100% of all green waste will be diverted from landfills and recycled as mulch and used onsite. For purposes of this analysis only a 50% reduction in GHG emissions was assumed. 100% of all green waste will be diverted from landfills and recycled as mulch and used onsite.
4. The project would not install hearth options in residential units.
5. The project would be required to utilize Tier 4 construction Equipment with Diesel Particulate Filters (DPF) attached or equivalent.
6. The project would install 434 kilowatts (KW) of solar.
7. The project would provide circuit and capacity in all 250 residential garages for use by electric vehicles, and would install 13 Electric Vehicle (EV) Charging Stations in surface parking areas throughout the project site.
8. The project would install high-efficiency water heaters or solar water heater systems.
9. The project would comply with ENERGYSTAR appliance requirements, and would meet ENERGYSTAR for Homes.
10. The project would install water efficient/drought tolerant and/or native landscape, use smart evapotranspiration controllers, would use reclaimed water on non-agricultural project landscaping areas and would limit conventional turf.
11. The project would install high-efficiency HVAC systems areas.
12. The project has been designed such that most buildings are oriented in a north/south direction.
13. The project includes a mix of uses, including an on-site restaurant, on-site recreation areas (community recreation center, trail system, linear park) and is within walking distance of off-site retail and commercial centers areas.
14. The project would improve duct insulation 15% over 2013 Title 24.
15. The project would comply with CALGreen Tier II standards.
16. The project would install a storm water reuse system on-site to collect, filter and re-use captured stormwater in landscaped areas.

17. The project would provide residential development within walking and biking distance of local retail.

PDFs 1-7 above have been quantified in this analysis, while PDFs 8-17 are not specifically analyzed quantitatively in this analysis. As a result, the proposed project air quality (and GHG) emissions are "worst case." Many of the measures listed above are outlined in the City's 2019 Housing Element Update Environmental Assessment measure GHG-3, Table A as recommended measures. The project would also implement a Transportation Demand Management (TDM) program to reduce automobile trips, both internal and external to the community (refer to the project's traffic mitigation measures in the Environmental Impact Report). Conservatively, this analysis has not taken any reductions for those TDM measures.

2.0 EXISTING ENVIRONMENTAL SETTING

2.1 Understanding Greenhouse Gases

GHGs, such as water vapor and carbon dioxide, are abundant in the earth's atmosphere. These gases are called "Greenhouse Gases" because they absorb and emit thermal infrared radiation, which acts like an insulator to the planet. Without these gases, the earth's ambient temperature would either be extremely hot during the day or blistering cold at night. However, because these gases can both absorb and emit heat, the earth's temperature does not sway too far in either direction.

Over the years, scientists have measured a rise in carbon dioxide and the general consensus is that human activities contribute to the heating of the planet. Other GHGs, such as methane and nitrous oxide, also contribute to global warming.

GHGs of concern, as analyzed in this study, are CO_2, CH_4, and N_2O. Both CH_4 and N_2O are converted to an equivalent amount of CO_2, referred to as CO_2e. CO_2e is calculated by multiplying the calculated levels of CH_4 and N_2O by a Global Warming Potential (GWP). The latest California Emissions Estimator Model (CalEEMod 2016.3.2) developed by Breeze Software uses the Intergovernmental Panel on Climate Change (IPCC) 2007 report as source data for GWP factors for both CH_4 and N_2O (CAPCOA, September 2016), using the 100-year periods of 25 and 298, respectively (IPCC, 2007).

2.2 Existing Setting

The Project site lies in the western portion of San Diego County in the City of Encinitas. The existing site is occupied by private commercial development with a flower-growing operation and consists of multiple greenhouse and support buildings as well as a single family home. The existing site is SP-3 (Encinitas Ranch Specific Plan) w/ R-30 overlay per Housing Element Update (City of Encinitas, 2019). The site is zoned R-30 and allows for the construction of up to 482 homes. Site topography onsite is generally flat with elevations at or around 325 feet above mean sea level (AMSL).

2.3 Climate (Encinitas)

Climate within the San Diego Air Basin (SDAB) area varies dramatically over short geographical distances due to size and topography. Most of southern California is dominated by high-pressure systems for much of the year, which keeps the high desert mostly sunny and warm. Typically, during the winter months, the high pressure system drops to the south and brings cooler, moister weather from the north. Prevailing winds are generally westerly flowing

towards the east for most of the year; however, during the autumn and winter, it is common for strong warm dry winds originating in the desert having a more easterly flow characteristic.

Meteorological trends within the City of Encinitas are typically cooler given the close vicinity to the ocean. Median temperatures range from approximately 55ºF in the winter to approximately 72ºF in the summer (City-Data, 2020)

3.0 CLIMATE CHANGE REGULATORY ENVIRONMENT

3.1 Federal

Massachusetts v. EPA

On April 2, 2007, in *Massachusetts v. EPA*, the Supreme Court directed the EPA Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare. In making these decisions, the EPA Administrator is required to follow the language of Section 202(a) of the federal Clean Air Act. On December 7, 2009, the EPA Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The Administrator found that elevated concentrations of GHGs— Carbon Dioxide CO_2, CH_4, N_2O, Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulfur hexafluoride (SF_6)— in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

3.2 State

State Greenhouse Gas Targets

Executive Order S-3-05

EO S-3-05 (June 2005) established the following statewide goals: GHG emissions should be reduced to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050.

AB 32 and CARB's Climate Change Scoping Plan

In furtherance of the goals established in EO S-3-05, the Legislature enacted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020.

Under AB 32, the California Air Resources Board (CARB) is responsible for and is recognized as having the expertise to carry out and develop the programs and regulations necessary to achieve the GHG emissions reduction mandate of AB 32. Therefore, in furtherance of AB 32, CARB adopted regulations requiring the reporting and verification of GHG emissions from specified sources, such as industrial facilities, fuel suppliers and electricity importers (see Health & Safety Code Section 35830; Cal. Code Regs., tit. 17, §§95100 et seq.). CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 relatedly authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

In 2007, CARB approved a limit on the statewide GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 million metric tons (MMT) CO_2e). CARB's adoption of this limit is in accordance with Health and Safety Code Section 38550.

Further, in 2008, CARB adopted the *Climate Change Scoping Plan: A Framework for Change* (*Scoping Plan*) in accordance with Health and Safety Code Section 38561. The *Scoping Plan* established an overall framework for the measures that will be implemented to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The 2008 *Scoping Plan* evaluated opportunities for sector-specific reductions, integrated all CARB and Climate Action Team[1] early actions and additional GHG reduction features by both entities, identified additional measures to be pursued as regulations, and outlined the role of a cap-and-trade program. The key elements of the 2008 *Scoping Plan* include the following (CARB, 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
2. Achieving a statewide renewable energy mix of 33 percent
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard

[1] The Climate Action Team is comprised of state agency secretaries and heads of state agencies, boards and departments; these members work to coordinate statewide efforts to implement GHG emissions reduction programs and adaptation programs.

6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation

In the 2008 *Scoping Plan*, CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5 percent from the otherwise projected 2020 emissions level; i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations (referred to as "Business-As-Usual" [BAU]). For purposes of calculating this percent reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the *Scoping Plan's* Functional Equivalent Document, CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations (CARB, 2011). Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7 percent (down from 28.5 percent) from the BAU conditions. When the 2020 emissions level projection was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewables Portfolio Standard (12 percent to 20 percent), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16 percent (down from 28.5 percent) from the BAU conditions.

In 2014, CARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework* (*First Update*). The stated purpose of the *First Update* was to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050." The *First Update* found that California is on track to meet the 2020 emissions reduction mandate established by AB 32, and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80 percent below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In conjunction with the *First Update*, CARB identified "six key focus areas comprising major components of the state's economy to evaluate and describe the larger transformative actions that will be needed to meet the state's more expansive emission reduction needs by 2050." Those six areas are: (1) energy; (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure); (3) agriculture; (4) water; (5) waste management; and, (6) natural and working lands. The *First Update* identified key recommended actions for each sector that will facilitate achievement of EO S-3-05's 2050 reduction goal.

Based on CARB's research efforts presented in the *First Update*, it has a "strong sense of the mix of technologies needed to reduce emissions through 2050." Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings and industrial machinery; decarbonizing electricity and fuel supplies; and, the rapid market penetration of efficient and clean energy technologies.

As part of the *First Update*, CARB recalculated the state's 1990 emissions level using more recent global warming potentials identified by the IPCC. Using the recalculated 1990 emissions level (431 MMT CO_2e) and the revised 2020 emissions level projection identified in the 2011 Final Supplement, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15 percent (instead of 28.5 percent or 16 percent) from the BAU conditions.

In November 2017, CARB released *California's 2017 Climate Change Scoping Plan* (*Second Update*) for public review and comment (CARB, 2017). This update proposes CARB's strategy for achieving the state's 2030 GHG target as established in Senate Bill (SB) 32 (discussed below). The strategy includes continuing the Cap-and-Trade Program through 2030,[2] inclusive policies and broad support for clean technologies, enhanced industrial efficiency and competitiveness, prioritization of transportation sustainability, continued leadership on clean energy, putting waste resources to beneficial use, supporting resilient agricultural and rural economics and natural and working lands, securing California's water supplies, and cleaning the air and public health. When discussing project-level GHG emissions reduction actions and thresholds, the *Second Update* states "[a]chieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development." However, the *Second Update* also recognizes that such an achievement "may not be feasible or appropriate for every project … and the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA." CARB's Governing Board adopted the *Second Update* in December 2017.

EO B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim goal of reducing statewide GHG emissions to 40 percent below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050 as set forth in S-3-05. To facilitate

[2] In July 2017, AB 398 was enacted into law, thereby extending the legislatively-authorized lifetime of the Cap-and-Trade Program to December 31, 2030.

achievement of this goal, EO B-30-15 calls for an update to CARB's *Scoping Plan* to express the 2030 target in terms of MMT CO_2e. The EO also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry were required to prepare GHG reduction plans by September 2015, followed by a report on action taken in relation to these plans in June 2016.

SB 32 and AB 197

SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction target; make changes to CARB's membership, and increase legislative oversight of CARB's climate change-based activities; and expand dissemination of GHG and other air quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to CARB as nonvoting members. The legislation further requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and identify specific information for GHG emissions reduction measures when updating the scoping plan, including information regarding the range of projected GHG emissions and air pollution reductions that result from each measure and the cost-effectiveness (including avoided social costs) of each measure (see Health & Safety Code Section 38562.7).

<u>Building Energy</u>

Title 24, Part 6

Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new buildings and alterations or additions to existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. The California Energy Commission (CEC) is required by law to adopt standards every 3 years that are cost effective for homeowners over the 30-year lifespan of a building. These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply

reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2013 Title 24 standards went into effect on July 1, 2014 and were estimated to reduce energy uses between 3.8% to 36.4%, depending on the energy source and land (Architectural Energy Corporation (AEC), 2013).

The 2016 Title 24 standards, which went into effect on January 1, 2017, are the currently applicable standards. When comparing the 2013 and 2016 standards for electrical consumption, it is expected that low-rise, single-family detached homes and multi-family homes would use 12% and 15% less electricity under the 2016 standards, respectively. Similarly, implementation of the 2016 standards is expected to reduce natural gas consumption by 21% in single-family homes and 31% in multi-family homes. Newly constructed non-residential buildings are estimated to achieve a 5% reduction in electricity consumption under the 2016 standards and no significant change relative to natural gas consumption (California Energy Commission, 2015). The current version of CalEEMod used in this analysis employs, as a default parameter, the 2016 Title 24 standards to estimate GHG emissions.

The Project would be required, at a minimum, to comply with the latest version of Title 24 standards at the time the Project seeks building permits. This will likely be the 2019 standards, as those standards will go into effect on January 1, 2020. The 2019 standards continue to improve upon the 2016 standards for residential and nonresidential buildings. One of the most notable changes in the 2019 standards is the requirement for the installation of rooftop solar on residential buildings (California Energy Commission, 2017). It should be noted that the State updates these regulations every three years. Thus, throughout Project construction, buildings will need comply with the most recently adopted standards.

Title 24, Part 11

In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen, and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals. The CALGreen 2016 standards became effective on January 1, 2017. The mandatory standards require the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings
- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources' Model Water Efficient Landscape Ordinance
- Sixty-five (65) percent of construction and demolition waste must be diverted from landfills
- Mandatory inspections of energy systems to ensure optimal working efficiency
- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15 percent improvement in energy requirements; stricter water conservation, 10 percent recycled content in building materials, 20 percent permeable paving, 20 percent cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30 percent improvement in energy requirements, stricter water conservation, 75 percent diversion of construction and demolition waste, 15 percent recycled content in building materials, 30 percent permeable paving, 25 percent cement reduction, and cool/solar-reflective roofs.

The newest CALGreen Standards were updated in 2019 and will become effective on January 1, 2020. The updated Code includes modifications to current codes under Division 5.1 (Planning and Design), Division 5.3 (Water Efficiency and Conservation), Division 5.4 and 5.5 (Material Conservation and Resource Efficiency) and (Environmental Quality). (California Title 24, Part 11, 2019). Should building permits be required after January 2020, CALGreen standards would be applicable.

Zero Net Energy Design Goals

As recognized in the *First Update* to the *Scoping Plan*, the California Public Utilities Commission, CEC, and CARB also have a shared, established goal of achieving zero net energy (ZNE) for new construction in California. As background, the California Public Utilities Commission first set forth its zero net energy goals in the 2008 Energy Efficiency Strategic Plan and the 2011 Big Bold Energy Efficiency Strategies. The key policy timelines include: (1) all new residential construction in California will be zero net energy by 2020, and (2) all new commercial construction in California will be zero net energy by 2030. As most recently defined by the CEC in its 2015 *Integrated Energy Policy Report*, a zero net energy code building is

one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building using the CEC's Time Dependent Valuation metric. It should be noted that Title 24 (2019) which will be effective in 2020 requires rooftop solar for all new residential units.

Title 20

Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. New appliances regulated under Title 20 include: refrigerators, refrigerator-freezers and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing for each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

<u>Mobile Sources</u>

AB 1493

In response to the transportation sector accounting for more than half of California's CO_2 emissions, AB 1493 was enacted in July 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by CARB to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30 percent (CARB, Clean Car Standards - Pavley, Assembly Bill 1493, 2017).

EO S-1-07

Issued in January 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste.

In 2018, CARB extended and expanded the Low Carbon Fuel Standard regulations to include a 20 percent target for reduction in carbon intensity by 2030.

SB 375

SB 375 (2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations (MPOs) are then responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plan. The goal of the SCS is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible and if implemented, the GHG reduction targets. If a SCS is unable to achieve the GHG reduction target, an MPO must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to Government Code Section 65080(b)(2)(K), a SCS does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

In 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets for SANDAG adopted in 2010 are a 7 percent reduction in emissions per capita by 2020 and a 13 percent reduction by 2035; the targets are expressed as a percent change in per capita passenger vehicle GHG emissions relative to 2005.

In October 2015, SANDAG adopted *San Diego Forward: The Regional Plan*, which contains the region's current SCS. In December 2015, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the SCS would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region. More specifically, as set forth in CARB Executive Order G-15-075, CARB determined that SANDAG's SCS would achieve a 15 percent per capita reduction by 2020 and a 21 percent per capita reduction by 2035.

In 2018, CARB updated the SB 375 targets. For purposes of SANDAG, the updated targets include a 15 percent reduction in emissions per capita by 2020 and a 19 percent reduction by 2035. SANDAG is in the process of preparing its next SCS, which will consider whether and how the region could attain these reduction targets.

Advanced Clean Cars Program

In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB, 2017). To improve air quality, CARB also has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that, in 2025, cars will emit 75 percent less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, also has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34 percent in 2025 (California Air Resources Board, 2012).

The Zero Emission Vehicle (ZEV) program acts as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles (PHEVs) in the 2018 to 2025 model years (California Air Resources Board, 2017). PHEVs contain both an internal combustion engine and an electric motor, which is powered by batteries. As defined by CARB, ZEVs includes PHEVs, Battery Electric Vehicles (BEV) and Fuel Cell Electric Vehicles (FCEV). The Clean Fuels Outlet regulation will ensure that fuels such as electricity and hydrogen are available to meet the fueling needs of the new advanced technology vehicles as they come to the market. In the context of this report, "EV" is used to refer to all types of electric, and low- or zero-emission vehicles.

As of the publication date of this report, FCEVs are not common in the San Diego region due to limited refueling capabilities. Based on information obtained from the California Fuel Cell Partnership, only one hydrogen fuel station (located in the City of Del Mar) exists in San Diego

County. At this time, one station is planned for construction in the City of San Diego sometime in the future. (California Fuel Cell Partnership, 2017). Therefore, for purposes of this analysis, only BEVs and PHEVs are referenced when ZEVs are discussed. If FCEVs gain traction in San Diego, additional GHG reductions would be realized.

EO B-16-12

EO B-16-12 (March 2012) directs state entities under the Governor's direction and control to support and facilitate development and distribution of ZEVs. This EO also sets a long-term target of reaching 1.5 million zero-emission vehicles on California's roadways by 2025. On a statewide basis, EO B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80 percent less than 1990 levels by 2050. In furtherance of this EO, the Governor convened an Interagency Working Group on Zero-Emission Vehicles that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet. As of January 2018, the Governor has called for as many as 1.5 million EV by 2025 and up to five million EV by 2030 (Office of Governor Edmund G. Brown Jr., 2018).

SB 350

In 2015, SB 350 – the Clean Energy and Pollution Reduction Act – was enacted into law. As one of its elements, SB 350 establishes a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see Public Utilities Code Section 740.12).

<u>Renewable Energy Procurement</u>

SB 1078

SB 1078 (2002) established the Renewables Portfolio Standard (RPS) program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1 percent of sales, with an aggregate goal of 20 percent by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20 percent of their power from renewable sources by 2010.

SB X1 2

SB X1 2 (2011) expanded the RPS by establishing that 20 percent of the total electricity sold to retail customers in California per year by December 31, 2013, and 33 percent by December 31, 2020, and in subsequent years be secured from qualifying renewable energy sources. Under the bill, a renewable electrical generation facility is one that uses biomass,

solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers previously covered by the RPS, SB X1 2 added local, publicly owned electric utilities to the RPS.

SB 350

SB 350 (2015) further expanded the RPS by establishing that 50 percent of the total electricity sold to retail customers in California per year by December 31, 2030 be secured from qualifying renewable energy sources. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency.

SB 100

SB 100 (2018) has further accelerated and expanded the RPS, requiring achievement of a 50 percent RPS by December 31, 2026 and a 60 percent RPS by December 31, 2030. SB 100 also established a new statewide policy goal that calls for eligible renewable energy resources and zero-carbon resources to supply 100 percent of electricity retail sales and 100 percent of electricity procured to serve all state agencies by December 31, 2045.

Water

EO B-29-15

In response to drought-related concerns, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25 percent relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have since become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Solid Waste

AB 939 and AB 341

In 1989, AB 939, known as the Integrated Waste Management Act (Public Resources Code Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25 percent by 1995 and 50 percent by the year 2000.

AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75 percent of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle has conducted multiple workshops and published documents that identify priority strategies that CalRecycle believes would assist the state in reaching the 75 percent goal by 2020.

Increasing the amount of commercial solid waste that is recycled, reused, or composted will reduce GHG emissions primarily by 1) reducing the energy requirements associated with the extraction, harvest, and processing of raw materials and 2) using recyclable materials that require less energy than raw materials to manufacture finished products (CalRecycle, 2018). Increased diversion of organic materials (green and food waste) will also reduce GHG emissions (CO_2 and CH_4) resulting from decomposition in landfills by redirecting this material to processes that use the solid waste material to produce vehicle fuels, heat, electricity, or compost.

CEQA Guidelines

With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or performance based standards" (14 CCR 15064.4[a]). A lead agency may use a "model or methodology" to estimate greenhouse gas emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change" (14 CCR 15064.4[c]). The CEQA Guidelines provide that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment (14 CCR 15064.4[b]):

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

In addition, the CEQA Guidelines specify that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7[c]).

Governor's Office of Planning and Research Guidance

The Governor's Office of Planning and Research technical advisory titled, CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review, states that "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact" (OPR, 2008). Furthermore, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice" (OPR, 2008).

Cumulative Nature of Climate Change

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. There are currently no established thresholds for assessing whether the GHG emissions of a project in the SDAB, such as the Project, would be considered a cumulatively considerable contribution to global climate change; however, all reasonable efforts should be made to minimize a project's contribution to global climate change.

While the Project would result in emissions of GHGs during construction and operation, no guidance exists to indicate what level of GHG emissions would be considered substantial enough to result in a significant adverse impact on global climate. However, it is generally believed that an individual project is of insufficient magnitude by itself to influence climate

change or result in a substantial contribution to the global GHG inventory as scientific uncertainty regarding the significance a project's individual and cumulative effects on global climate change remains.

Thus, GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA, 2008). This approach is consistent with that recommended by the CNRA, which noted in its Public Notice for the proposed CEQA amendments (pursuant to SB97) that the evidence before it indicates that in most cases, the impact of GHG emissions should be considered in the context of a cumulative impact, rather than a project-level impact (CNRA, 2009). Similarly, the Final Statement of Reasons for Regulatory Action on the CEQA Amendments confirm that an environmental impact report or other environmental document must analyze the incremental contribution of a project to GHG levels and determine whether those emissions are cumulatively considerable (CNRA, 2009).

Approaches to Determining Significance

Neither the State of California nor the SDAPCD has adopted quantitative emission-based thresholds of significance for GHG emissions under CEQA. In the absence of any adopted numeric threshold, the significance of the Project's GHG emissions will be evaluated consistent with CEQA Guidelines Section 15064.4(b) by considering whether the Project complies with applicable plans, policies, regulations, and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

3.3 Local

City of Encinitas General Plan

A project's adherence to the City's General Plan can be determined through demonstrating consistency with General Plan assumptions and policies. If a project would generate GHG emissions consistent with the maximum allowable buildout as defined by the General Plan, the project would be consistent with the estimated GHG emissions for that site.

The City of Encinitas General Plan, along with relevant specific plans, contains policies directly and indirectly related to GHG emissions. Pertinent goals and policies related to GHG emissions are listed below.

City of Encinitas General Plan Circulation Element (City of Encinitas, 2003)

Policy 1.15: The City will actively support an integrated transportation program that encourages and provides for mass-transit, bicycle transportation, pedestrians, equestrians, and car-pooling.

Goal 3: The City of Encinitas will promote the use of other modes of transport to reduce the dependence on the personal automobile.

3.2. Continue to assist in expanding public transportation and emphasize public transportation in future development with preference given to cost-effective alternatives.

3.3. Create a safe and convenient circulation system for pedestrians.

3.4. Cooperate with San Diego County, SANDAG, and other jurisdictions to help plan and implement a regional multi-modal transportation system that is accessible to residents in the City.

3.5. Encourage development of mass transit and transit access points along the existing Interstate 5 freeway corridor or along the railroad right-of-way.

3.6. The City should provide and encourage efficient links between possible rail transit service and other transportation modes, including rerouting of bus service to interface with transit stops.

3.11. The City will strive to implement a safe, direct, and convenient circulation system for commuting and recreational bicycle traffic. The City will support the development of additional bicycle facilities in the Coastal Zone, including the following:

- All Circulation Element roads will include provisions for bicycle lanes unless precluded by design and safety considerations in which cases, alternative routes shall be provided to form a continuous network.
- The provision of secure bicycle storage facilities at all beaches designated for high and moderate levels of use.
- The installation of bicycle and surfboard racks on all buses serving the Coastal Zone.

City of Encinitas General Plan Resource Management Element (City of Encinitas, 2011)

Policy 1.1: Require new development to utilize measures designed to conserve water in their construction.

Policy 1.10: Promote the use of water efficient sprinkling and gardening systems to include ordinances and technology to encourage drought tolerant plants.

Goal 5: The City will make every effort to participate in programs to improve air and water quality in the San Diego region.

5.1. The City will monitor and cooperate with the ongoing efforts of the U. S. Environmental Protection Agency, the San Diego Air Pollution Control District, and the State of California Air Resources Board in improving air quality in the regional air basin. The City will implement appropriate strategies from the San Diego County SIP which are consistent with the goals and policies of this plan.

Goal 6: The City will make every effort to reduce the amount of solid and liquid waste generated in the Planning Area and will identify ways to responsibly deal with these wastes.

6.1. The City will phase in all practical forms of mandatory recycling as soon as possible.

6.2. The City will contract only with waste haulers who will willingly cooperate with the City's recycling effort.

Goal 9: The City will encourage the abundant use of natural and drought tolerant landscaping in new development and preserve natural vegetation, as much as possible, in undeveloped areas.

9.4. Encourage and adopt standards for the use of drought tolerant and/ or natural landscaping and efficient irrigation systems throughout the City.

Goal 13: Create a desirable, healthful, and comfortable environment for living while preserving Encinitas, unique natural resources by encouraging land use policies that will preserve the environment.

13.1. The City shall plan for types and patterns of development which minimize water pollution, air pollution, fire hazard, soil erosion, silting, slide damage, flooding and severe hillside cutting and scarring.

Goal 15: The City will make every effort to conserve energy in the City thus reducing our dependence on fossil fuels.

15.1. The City will encourage the use of alternate energy systems, including passive solar and architectural and mechanical systems, in both commercial and residential development.

15.2. The patterns of proposed subdivisions and the orientation and design of structures on lots shall be designed with the objective of maximizing the opportunities for solar energy use and energy conservation.

15.3. Energy conserving construction standards and requirements shall be enforced in the field inspection of new construction.

City of Encinitas Climate Action Plan

Per the City's Climate Action Plan (City of Encinitas, 2018), Encinitas' CAP serves as a guiding document and outlines a course of action for community and municipal operations to reduce greenhouse gas emissions and the potential impacts of climate change within the jurisdiction. The CAP benchmarks GHG emissions in 2012 and identifies what reductions are required to meet GHG reduction targets based on State goals embodied in AB 32, SB 32, and EOs B-30-15 and S-3-05. The CAP aims to achieve the following local community-wide GHG reduction targets:

- 13 percent below 2012 levels by 2020
- 41 percent below 2012 levels by 2030

Given this, if a project is consistent with the projections in the CAP which are directly related the consistency with the General Plan, its associated growth in terms of GHG emissions was accounted for in the CAP's projections and would not increase emissions beyond what is

anticipated in the CAP or inhibit the City from meeting its reduction targets. If a land use and/or zoning designation amendment results in a more GHG-intensive project, the project would be required to demonstrate consistency with applicable CAP measures and offset the increase in emissions.

As explained in the CAP, an implementation strategy was prepared which includes an implementation strategy matrix with 19 City Actions or requirements which the city will implement directly through policy as well as require both private and municipal projects to include features such as low flow water fixtures, solar and electric vehicle (EV) charging stations.

If a project is consistent with the projections in the CAP, then its associated growth in terms of GHG emissions was accounted for in the CAP's projections and would not increase emissions beyond what is anticipated in the CAP or inhibit the County from reaching its reduction targets. If a project is consistent with the projections in the CAP, its GHG emissions would not conflict with an applicable plan adopted for the purpose of reducing the emissions of greenhouse gases. Additionally, if a project is consistent with the CAP, the project would be consistent with reduction targets CARB's Scoping Plan Update's recommended community targets, as well as the State's 2014 GHG emissions inventory and the targets established by AB 32, SB 32, and EOs B-30-15 and S-3-05 and would similarly be in compliance with CEQA Guidelines.

The City of Encinitas has prepared a CAP implementation plan and calls for an annual report to evaluate whether the City is on track to meet the 2020 GHG emissions reduction target and provides an early look at the City's trend toward the 2030 emissions target. The City's annual report for 2019 indicated the City has met the 2020 goals and is on track to meet the 2030 goals (City of Encinitas, 2020).

2019 Housing Element Update

The Housing Plan Update 2019 includes the 2013 - 2021 Housing Element Update and a series of discretionary actions to update and implement the City's Housing Element. On March 13, 2019, the City Council considered the project and unanimously approved Resolution 2019-09 adopting the Housing Element Update. The Environmental Assessment conducted for the 2018 Housing Element Update determined that the projects anticipated under the 2018 Housing Element Update would not directly conflict with the policies and reduction measures within the City's CAP; however, they had the potential to result in exceedance of the City's interim screening threshold (900 MT CO_2e/Yr) which would potentially conflict with the City's ability to achieve the CAP's GHG emissions reduction targets. Therefore, individual projects are required to perform Greenhouse Gas Emissions Assessments (City of Encinitas, 2018). Projects that do not achieve the screening level threshold shall prepare a project-specific GHG analysis that identifies an appropriate project-level significance threshold and project-specific

mitigation measures. Examples of mitigation measures which can be utilized were identified within the GHG-3 Table A of the Environmental Assessment and are shown in Table 3.1 below:

Table 3.1: Menu of Potential Project Level GHG Reduction Measures

GHG-3 TABLE A: Menu of Potential Project-Level GHG Reduction Measures	
Feature	**Description**
Indoor Space Efficiencies	
Heating/Cooling Distribution System	Improve duct insulation 15% over standard requirement (2013 Title 24)
Space Heating/Cooling Equipment	High Efficiency HVAC (equivalent to SEER 15 AFUE or 8.5 HSPF)
Water Heaters	High Efficiency Water Heaters or, Solar Water Heater Systems or, Water Heater with Solar Pre-heat System
Daylighting	Daylighting is the ability of each room within the building to provide outside light during the day reducing the need for artificial lighting during daylight hours. Future development under the HEU, should strive for daylighting in all rooms within the living space through use of windows, solar tubes, skylights, etc.
Artificial Lighting	High Efficiency Lights (50% of in-unit fixtures are high efficacy) High efficacy is defined as 40 lumens/watt for 15 watts or less fixtures: 50 lumens/watt for 15-40 watt fixtures, 60 lumens/watt for fixtures >40watt)
Appliances	All multi-family developments will provide Energy Star ceiling fans, refrigerators, dishwashers, and laundry washing machines. Laundry washing machines include those provided for shared or common use.
Miscellaneous Residential Building Efficiencies	
Cal-Green Tier II	Demonstrate compliance with CALGreen Tier II standards.
Building Placement	North/South alignment of building or other building placement such that the orientation of the buildings optimizes natural heating, cooling, and lighting.
Shading	At least 90% of south-facing glazing will be shaded by vegetation or overhangs at noon on June 21.
Energy Star Homes	EPA Energy Star for Homes (version 3 or above).
Independent Energy Efficiency Calculations	Provide point values based upon energy efficiency modeling of the Project. Note that engineering data will be required documenting the energy efficiency and point values based upon the proven efficiency beyond Title 24 Energy Efficiency Standards.
Residential Renewable Energy Generation	
Photovoltaic	Solar Photovoltaic panels installed on individual homes or in collective neighborhood arrangements such that the total power provided augments 25 percent of the power needs of the project.
Off-site renewable energy project	The applicant may submit a proposal to supply an off-site renewable energy project such as renewable energy retrofits of existing homes that will help implement renewable energy within the City. These off- site renewable energy retrofit project proposals will be determined on a case by case basis and must be accompanied by a detailed plan that documents the quantity of renewable energy the proposal will generate. Point values will be determined based upon the energy generated by the proposal.
Other Renewable Energy Generation	The applicant may have innovative designs or unique site circumstances that allow the project to generate electricity from

Table 3.1: Menu of Potential Project Level GHG Reduction Measures

GHG-3 TABLE A: Menu of Potential Project-Level GHG Reduction Measures	
Feature	**Description**
	renewable energy not provided in the table. The ability to supply other renewable energy and the point values allowed will be decided based upon engineering data documenting the ability to generate electricity.
Residential Water Conservation	
Irrigation and Landscaping	
Water Efficient Landscaping	Limit conventional turf to < 50% of required landscape area Limit conventional turf to < 25% of required landscape area No conventional turf (warm season turf to < 50% of required landscape area and/or low water using plants are allowed). Only California Native Plants that requires no irrigation or some supplemental irrigation.
Water Efficient irrigation systems	Weather based irrigation control systems or moisture sensors (demonstrate 20% reduced water use).
Recycled Water	Recycled connections (purple pipe) to irrigation system on site Water Reuse Graywater Reuse System collects Gray water from clothes washers, showers and faucets for irrigation use, Storm water Reuse Systems On-site storm water collection, filtration and reuse systems that provide supplemental irrigation water.
Potable Water	
Overall water reduction calculation	Achieve 25 percent reduction
Vehicle Trip Reduction Measures	
Mixed-Use	Mixes of land uses that complement one another in a way that reduces the need for vehicle trips can greatly reduce GHG emissions.
Residential Near Local Retail (Residential only Projects)	Having residential developments within walking and biking distance of local retail helps to reduce vehicle trips and/or vehicle miles traveled.
Bicycle Infrastructure	
Bicycle Infrastructure	Provide onsite bicycle-path linkages between residential and other land uses or a surrounding bicycle path network.
Renewable Fuel/Alternative Fuel Vehicles (Electric Vehicle Infrastructure)	
Electric Vehicle Recharging	Provide circuit and capacity in garages of residential units for use by an electric vehicle. Charging stations are for on-road electric vehicles legally able to drive on all roadways including Interstate Highways and freeways.
Electric Vehicle Charging Stations	Include 1 electric vehicle charging station for every 50 parking spaces.
Construction and Demolition Debris Diversion Program	
Recycling of Construction/ Demolition Debris	All construction debris will be disposed of at a Construction, Debris, and Inert-material Recovery Facility

Alternative Analysis – City of Encinitas Specific Efficiency Threshold

With the release of the 2017 Climate Change Scoping Plan Update, CARB recognized the need to balance population growth with emissions reductions and in doing so, provided a new local

plan level methodology for target setting that provides consistency with state GHG reduction goals using per capita efficiency targets. These statewide per capita targets account for all emissions sectors in the State, statewide population forecasts, and the statewide reductions necessary to achieve the 2030 statewide target under SB 32. The targets are generated by dividing the statewide 2030 GHG emissions targets by the statewide 2030 SP.

As discussed, at this time, the State has codified a target of reducing emissions to 40 percent below 1990 emissions levels by 2030 (SB 32) and has developed a Scoping Plan to demonstrate how the State will achieve the 2030 target and make substantial progress toward the 2050 goal of 80% reduction in 1990 GHG emissions levels set by EO S-3-05. In the recently signed EO B-55-18, which identifies a new goal of carbon neutrality by 2045 and supersedes the goal established by EO S-3-05, CARB has been tasked with including a pathway toward EO B-55-18 goals in the next Scoping Plan update. While state and regional regulatory of energy and transportation systems, along with the State's CAP and Trade Program, are designed to be set at limits to achieve most of the reductions needed to hit the State's long term targets, local government can do their fair share toward meeting the State's targets by siting and approving projects that accommodate population growth with project that are GHG-efficient.

The Association of Environmental Professionals (AEP) Climate Change Committee recommends that CEQA GHG analyses evaluate project emissions in light of the trajectory of state climate change legislation and assess their "substantial progress" toward achieving long-term reduction targets identified in available plans, legislation or EOs (AEP, 2016). Consistent with AEP Climate Change Committee recommendations for projects with horizon years 2021 or later, such as this project, are analyzed in terms of whether the project would impede "substantial progress" toward meeting the reduction goal identified in SB 32 and now EO B-55-18. As SB 32 is considered an interim target toward meeting the 2045 State goal, consistency with SB 32 would be considered contributing substantial progress toward meeting the State's long-term State targets is important as these targets have been set at levels that reduce California's fair share of emissions toward international targets that will stabilize global climate change effects and avoid the adverse environmental consequences described herein (Executive Order B-55-18).

In the Scoping Plan Update, CARB suggested substantial progress could be made if a regional or County-wide GHG reduction plan targeted reducing emissions to 6 MT CO_2e per capita by 2030 and 2 $MTCO_2e$ per capita by 2050, but do not necessarily need to be project-specific targets. We note that considering the overall statewide emissions in 1990 and 2014 and the projected statewide population in 2030 and 2050, these per-capita goals would be equivalent

to reducing 2014 emissions by 40 percent by 2030[3]. The per-capita targets were determined to be applicable to the City of Encinitas because the City seeks to achieve State goals and CARB's per-capita metrics provide the means to accomplish that. However, following court guidance in (Golden Door Properties, LLC v. County of San Diego., 2018) and (Center for Biological Diversity v. California Department of Fish and Wildlife and Newhall Ranch, 2015) to make the project-specific efficiency threshold locally appropriate, one must use local data to establish an analytical path between the threshold and a project providing its fair share contribution towards meeting State targets using the project population's efficient generation of GHG.

Alternative Analysis and Local Data

As identified above, a methodology to balance population growth with emissions has evolved to become a dominant strategy to reduce GHGs with focus on achieving CAP implemenation goals using an efficiency metric. This efficiency metric is a limit of GHG emissions each person and employee (combined) would need to achieve to be consistent with the CAP implementation goals. The metric is defined by a certain quantity of CO_2e in MT per SP per year (MT CO_2e/year/SP). The SP again is the total number of residents plut the total employment.

The City's baseline emissions inventory, the University of San Diego's Energy Policy Initiatives Center (EPIC) calculated GHG emissions for the City for both community-wide sectors and County government operations for the year 2012, with emissions projections for 2020 and 2030. EPIC concluded that total emissions in the City of Encinitas in 2012 comprised approximately 483,773 MT CO_2e

To be consistent with SB 32, The City's goal is to have a 41% reduction with the baseline or a reduction to a target of 285,426 MT CO_2e/year in 2030. The population used in this analysis is the City population, which in 2030 is expected to be 64,938 residents and 27,958 Jobs or an SP of 92,896 SP (EPIC, 2017). Thus, in order to achieve a City emission level of 285,426 MT CO_2e based on the reductions needed per SB 32, the required per capita efficiency target in 2030 would be approximately 3.1 MT CO_2e (285,426/92,896) per SP.

[3] Setting a target with respect to a baseline year, such as 2014, is standard industry practice in climate action planning. The original 2008 Scoping Plan developed by CARB recommended a reduction below baseline levels as a valid reduction target, in recognition of the challenges in developing a 1990 inventory for a local jurisdiction. Data used for developing the 2014 inventory represent the best available data, based on improved inventory methodologies and data collection procedures. The same level of rigor cannot be applied to a 1990 inventory and any attempts to extrapolate activity data (e.g., vehicle miles traveled, energy consumption) for 1990 would introduce a large margin of error and provide an inaccurate accounting of county emissions. Therefore, reliance on State data to determine relative reduction levels that can be applied to local 2014 emissions levels is a valid methodology to determine reduction targets.

Population can be determined for the project using SANDAG Series 13 data. From that data, the average residents per home is 2.51 in 2020 and 2.52 in 2035 and rises to 2.72 residents per home in 2050 (SANDAG, 2020). For purposes of this analysis, the lesser of these predictions is the most conservative and is used within this analysis. Since the project proposes 250 homes, the residential population would be 627.5. Per discussions with the project applicant, employment within Fox Point Farms is expected to be at least 20 employees which would include all employees required for operations onsite. Based on this, the total SP would be 648 persons. This is a conservative estimate in that it uses the lowest potential population and therefore, when the efficiency metric is calculated, would result in the highest, "worst case" potential emissions per service population.

4.0 METHODOLOGY

4.1 Construction CO_2e Emissions Calculation Methodology

Project construction dates were estimated based on a construction start date in 2021 with construction ending in 2023. CalEEMod was utilized for all construction calculations and has been manually updated to reflect SDAPCD Rule 67 VOC paint standards and to include Tier 4 construction equipment with DPF per the PDFs identified in Section 1.4 above. Table 4.1 shows the expected timeframes for the construction of all project infrastructure and facilities as well as the expected number of pieces of equipment. Also, it should be noted that data used in Table 4.1 below would be conservative in the event construction began/ended at a later date, as annual code updates and fleet improvements typically have the effect of restricting and limiting emissions on construction equipment over time.

Table 4.1: Expected Construction Equipment

Equipment Identification	Proposed Start	Proposed Complete	Quantity
Demolition	06/01/2021	06/30/2021	
Concrete/Industrial Saws			1
Excavators			3
Rubber Tired Dozers			2
Site Preparation	07/01/2021	07/21/2021	
Rubber Tired Dozers			3
Tractors/Loaders/Backhoes			4
Grading	07/22/2021	09/30/2021	
Excavators			2
Graders			1
Rubber Tired Dozers			1
Scrapers			2
Tractors/Loaders/Backhoes			2
Paving	09/01/2021	09/28/2021	
Pavers			2
Paving Equipment			2
Rollers			2
Building Construction	10/01/2021	01/20/2023	
Cranes			1
Forklifts			3
Generator Sets			1
Tractors/Loaders/Backhoes			3
Welders			1
Architectural Coating	10/01/2022	01/13/2023	
Air Compressors			1

This equipment list is based upon equipment inventory within CalEEMod. The quantity and types are based upon assumptions provided by the project applicant.

GHG impacts related to construction are calculated using the latest CalEEMod 2016.3.2 model which was developed by BREEZE Software for South Coast Air Quality Management District (SCAQMD). CalEEMod is the state-wide accepted modeling software for preparing such air quality analysis throughout California and is sensitive to project-specific input including project location, construction schedule, and proposed uses. When project-specific information is not available or known, CalEEMod includes built in default values which are industry-accepted standards to appropriately model and estimate emissions. CalEEMod incorporates emission factors from the EMFAC2014 model for on-road vehicle emissions and the OFFROAD2011 model for off-road vehicle emissions.

Because impacts from construction activities occur over a relatively short-term period of time, they contribute a relatively minimal portion of the overall lifetime project GHG emissions. To adequately include GHG emission from construction in the lifetime/operational GHG estimates, construction emissions are amortized over a 30-year project lifetime (SCAQMD, 2008). During construction, grading activities will remove mostly disturbed vegetation and soils. New vegetation, including trees and other landscaping, planted during building construction would ultimately sequester more carbon during operations than existing, disturbed vegetation. GHG reductions from new sequestration were not taken in this analysis, thus, the project would likely result in fewer MT CO_2e annually than reported in this analysis.

4.2 Operational Emissions Calculation Methodology

Operational GHG sources for the project would include: area sources such as landscaping and architectural coatings during maintenance; energy sources from electrical usage; mobile sources from vehicular traffic including trucks and passenger vehicles; solid waste from trash generation and decomposition at landfills; and emissions generated through the conveyance and treatment of water. PDFs as defined in Section 1.4 have been included within the analysis. Further, as noted in Section 1.4, this is a conservative analysis because additional PDFs would be implemented which would further reduce GHG emissions; however, because these PDF's are not quantifiable using the best available modeling and other supportable data, they have not been included in the emissions reductions estimates.

GHG emissions for energy, water, and solid waste source emissions were estimated based on default inputs with the exception of mobile source emissions. Mobile source emissions were based on the projected generated traffic volumes of 1,690 average daily trips (ADT) with an average trip distance of 6 miles, based on information provided by SANDAG for the project traffic study (Chen Ryan, 2020).

Energy Intensities as recommended by CalEEMod inputs were assumed within this report. Title 24 efficiencies as modeled within CalEEMod 2016.3.2 utilize Title 24 (2016) as defaults,

though the project will comply with Title 24 (2019) which would further improve upon building efficiency requirements.

Regarding the project's energy intensity factors, CalEEMod's default rates from 2009 were updated to reflect project operational year intensity factors for 2023. In 2009, SDG&E achieved 10.5 percent procurement of renewable energy (California Public Utilities Commission, 2016) and in 2030 will have up to 60 percent in place per requirements of SB 100. Given this, SDG&E energy-intensity factors for 2024 were calculated and were modeled as such within CalEEMod as shown in Table 4.2 and are shown in ***Attachment A*** to this report. It should be noted that SDG&E has already achieved 44 percent as of 2019, though for purposes of this analysis only 43.8% was used (California Public Utilities Commission, 2019).

Table 4.2: SDG&E Energy Intensity Factors

GHG	2009 Factors (lbs/MWh) w/10.5% RPS	2023 Factors – 43.8% Renewables (lbs/MWh)
Carbon Dioxide (CO_2)	720.49	452.42
Methane (CH_4)	0.029	0.0182
Nitrous Oxide (N_2O)	0.006	0.0038

Project-Installed Solar Panels

The project would implement design features identified in Section 1.4 of this analysis. CalEEMod was updated to include these project-specific design features which would reduce emissions, as described below. For reduction calculations associated with the PV design feature, annual energy estimates were provided by the National Renewable Energy Laboratory (NREL, 2020) and shown as ***Attachment B*** to this report. Based on this, the project solar commitment (434 kW) would be estimated to generate 688,522 kWh of annual electrical energy. It should be noted that the more solar produced by the project reduces the amount of non-renewable energy added to the grid by offsite utilities. Given this, offsite generation from renewables would not be offset from onsite renewables. Instead it is assumed that non-renewable generation is offset at 100%. Therefore, default GHG intensities or those assumed within CalEEMod are used to determine GHG reductions and are shown in ***Attachment C*** to this report. The project would be fully consistent with the City's CAP with respect to solar, which calls for up to 1W per SF for new multifamily homes under City Action RE-2 and 2W per SF for new commercial developments such as the proposed restaurant under RE-3. Combined, the CAP requires 257 kW of solar for the proposed project – the project is providing 434 kW.

Electric Vehicle Charging Stations

Garage Based EV Chargers

The proposed project will install 250 Level 2 charging stations in garages, which are 220-volt chargers that can provide between 7.2 and 19.2 kW of power depending on the charging systems amperage rating. It is assumed, however, that not all residents will take advantage of the convenience of having these chargers installed, though the inclusion of the PDF is expected to encourage residents to purchase an electric vehicle. The average amount of cars a typical residential unit has associated with it is a function of how many drivers each home has.

Based on studies conducted by the Federal Highway Administration, there are roughly 639 drivers per 1,000 residents in the State of California (Federal Highway Administration, 2017). Based on Section 3.3 above, the project would have a population of 628 residents. Based on the drivers to resident ratio, the project would have roughly 401 drivers.

CalEEMod incorporates emission factors for on-road mobile sources from the EMFAC2014 model. Based on the EMFAC2014 projections for the year 2030, California would have 32.25 million vehicles on the road; EMFAC2014 assumes that 1.96 million of those vehicles would be electric. This equates to roughly 6 percent of the vehicle fleet in the year 2030 being electric. In January of 2018, EO B-48-18 was signed to "boost the supply of zero-emission vehicles and charging and refueling stations in California." The EO directs state government to meet a series of milestones toward a long-term target of 1.5 million ZEVs, specifically, on California's roadways by 2025, and 5 million by 2030 (Governor of California, 2018). This would increase the electric vehicle market to 15.4 percent of the market share, or a 9.4 percent increase over what EMFAC 2014 estimates and is already accounted for in CalEEMod. It should be noted that the year 2030 would be appropriate for EV reductions since the project would be expected to operate for at least 30 years when EV operations are expected to be significantly higher.

Since the project would likely have 401 drivers, roughly 37 of these would have an electric vehicle. Since CalEEMod already assumes some of the vehicles are already electric, only 9.4% of the drivers are assumed to purchase EV cars beyond what is currently assumed in CalEEMod. Given this, roughly 38 EV cars above normal would be expected and assumed within this analysis. The 38 EVs used by onsite drivers would generate 152 ADT and 55,480 trips per year. Based on the 6 miles ADT per trip as identified in the project traffic study, the 38 EVs would account for roughly 332,880 VMT annually.

The project would also install 13 19.2 KW Level II chargers in the common parking areas for visitors and guests to utilize. For purposes of this analysis, it is assumed that each charger will be utilized 3 hours per occurrence, and would be utilized no more than 20 percent of the year, or roughly 73 days per year conservatively. Given this, the guest EV charging stations would be utilized up to 2,847 hours yearly.

To understand EV efficiency it is important to understand how the relationship between energy and mileage is related. For a standard petroleum-based vehicle, miles per gallon (MPG) is used. For EVs, efficiency can be defined as a specific fixed quantity of energy per a distance. Typically, kilowatt hours per 100 miles traveled is used. To simplify this, the U.S. Department of Energy has developed a miles per gallon gasoline equivalent unit (MPGe) which is 0.337 kWh/100 miles traveled (Department of Energy, 2000). For many of the cars on the market today, this efficiency is over 100 MPGe.

The common area EV chargers would consist of 13 - 220V Level 2 charging stations capable of providing 19.2 kW of power. Based on this, for a 100 MPGe vehicle, each hour of charging will provide 56.97 miles of driving storage. Given this, the project-delivered energy would provide 56.97 miles per hour of charge multiplied by the estimated 2,847 charging hours yearly or 162,193.59 VMT per year.[4] Combined with EV chargers within garages, the project would have a combined VMT of 495,073.59 per year from the EV infrastructure.

Based on City Action CET 5 of the CAP, a mixed use development would be required to install enough EV charging stations to cover 8% of all common parking areas. This would equate to 12.48 or 13 EV charging stations for the project. Since the project is installing 13, the project would not conflict with CET 5. The multi-family component of the project would also install EV charging stations in each of the garages which exceeds the requirement of City Action CET 4 designed for single family implementation and goes beyond the EV ready requirement to only include the circuitry for EV chargers. It should be noted that based on the CAP, in 2030, 370 EVCS units would reduce GHG emissions by 1,357 MT CO_2e annually or roughly 3.67 MT CO_2e annually per station.

Finally, it should be noted that the project would also include a number of additional PDFs identified in section 1.4 of this report which a are not quantified within this analysis. Therefore, it is reasonable to conclude that the total GHG emissions quantified in this analysis is worst case for this project.

[4] It should be noted that drivers using these chargers would receive power directly from the project so VMT reductions from the entire charge would be applied to the project.

5.0 FINDINGS

5.1 Project Related Construction Emissions

Utilizing the CalEEMod inputs for the model as shown in Table 4.1 above, grading and construction of the project would generate approximately 1,133.98 MT CO_2e over the construction period. Based on SCAQMD methodology, it is recommended to average the construction emissions over the project life, which is assumed to be 30 years. Given this, the annual construction emission would be 37.80 MT CO_2e per year. A summary of the construction emissions is shown in Table 5.1 below. The analysis of GHG emissions generated during construction activities includes the application of the PDF to include the application of Tier 4 Diesel Equipment with Diesel Particulate Filters attached.

Table 5.1: Expected Construction CO_2e Emissions Summary MT/Year

Year	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
2021	0.00	462.69	462.69	0.10	0.00	465.17
2022	0.00	629.16	629.16	0.09	0.00	631.34
2023	0.00	37.35	37.35	0.01	0.00	37.47
Total						**1,133.98**
Yearly Average Construction Emissions (Metric Tons/year over 30 years)						**37.80**
Expected Construction emissions are based upon CalEEMod modeling assumptions for equipment and durations listed in Table 4.1 above.						

5.2 Project-Related Operational Emissions

As previously discussed, emissions generated from area, energy, mobile, solid waste and water uses are calculated within CalEEMod. These settings, which are automatically populated throughout the model, are based on the inputted land use and intensities expected at the project site. Unless stated within this report, default values generated within CalEEMod were used. The calculated operational emissions for 2024 are identified in Table 5.2 on the following page. Based on the CalEEMod analysis, the proposed project buildout with annualized construction emissions would generate 1,757.16 MT CO_2e annually.

Specific reductions from PDF 6 and 7 require separate modeling and calculations. PDF 6 will reduce annual operational emissions through the addition of 434 kW of PV which would generate 688,522 kWh annually. PV is considered 100 percent renewable and once installed

would offset GHG emissions generated from non-renewable energy sources. Based on CalEEMod outputs, the GHG emission reductions from solar are expected to be 225.80 MT CO_2e annually.

PDF 7 would include the installation of 263 EV chargers and, based on findings in Section 4.2 of this analysis, the project EV would produce 495,074 VMT per year. Based on the CalEEMod files for this project (as shown in Attachment A) typical vehicles generate roughly 0.000377 MT CO_2e per VMT. Given this, the project would offset roughly 186.64 MT CO_2e per year. This equates to approximately 0.71 MT CO_2e per EV charger. For comparison, it should be noted that the City's CAP estimates roughly 3.67 MT CO_2e annually. If the City's estimate per station were to be used, the project's EV chargers would be expected to reduce 965 MT CO_2e in 2030; therefore, the analysis presented herein is considered conservative.

Based on the CalEEMod analysis, the proposed project buildout with annualized construction emissions would generate 1,757.16 MT CO_2e annually, which is shown in Table 5.2. These emissions include PDFs 1-5 shown above. PDFs 6 and 7 reduce emissions by 412.44 MT CO_2e, reducing project emissions to 1,344.72 MT CO_2e after all quantifiable PDFs have been implemented.

Table 5.2: Proposed Project Operational GHG emissions (MT/Year)

Source	Bio-CO_2	NBio-CO_2	Total CO_2	CH_4	N_2O	CO_2e (MT/Yr)
Area	0.00	3.04	3.04	0.00	0.00	3.11
Electrical Usage	0.00	209.34	209.34	0.01	0.00	210.10
Natural Gas	0.00	151.34	151.34	0.00	0.00	152.24
Mobile	0.00	1,212.28	1,212.28	0.06	0.00	1,213.87
Waste	13.04	0.00	13.04	0.77	0.00	32.30
Water	7.87	73.72	81.59	0.81	0.02	107.74
Total includes reductions from PDFs 1-5						1,719.36
Amortized Construction Emissions						37.8
PDF 6 – 434 KW of PV						-225.8
PDF 7 – EV Chargers (263 Stations)						-186.64
Project Total GHG Emissions						**1,344.72**
Residents (628 persons) + Employment (20 persons): Service Population						**648**
MT/SP						**2.08**
Data is presented in decimal format and may have rounding errors.						

The proposed project would be consistent with the City's General Plan and is therefore consistent with the City's CAP. It should be noted that the design features identified above

have been included to address the requirements of the CAP and will be a requirement of this project. Based on this, a less than significant GHG impact is expected.

5.3 Project Specific Efficiency Metric Alternative Analysis

The project was also analyzed using an alternative approach for consistency with SB 32 using a project-specific, locally appropriate efficiency-based threshold based on forecasted population and the allowable emissions which the City must achieve in 2030 to be compliant with SB 32. Based on this approach, the project would be required to generate fewer service population emission than 3.1 MT CO_2e, as described above in Section 3.3.

The project was found to generate 1,344.72 MT CO_2e with both annualized construction and annual operations (see Tables 5.1 and 5.2, above), which is considered a conservative estimate for the reasons explained above.

The project's service population was determined to be 648 (628 residents and 20 employees). Given this, the project would have a projected 2.08 MT CO_2e per SP (1,344.72 MT CO_2e/648 persons) as can be seen in Table 5.2 above. Based on this, the proposed project would generate fewer emissions than a City-specific localized efficiency metric of 3.1 MT CO_2e per SP and therefore, generate a less than significant impact.

5.4 Consistency with Statewide, Regional, and Local Plan

Consistency with CARB's 2008 and 2017 Scoping Plans

CARB's 2008 and 2017 Scoping Plans provide a framework for actions to reduce California's GHG emissions in accordance with the statewide 2020, 2030 and 2050 targets, and require CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. The 2008 and 2017 Scoping Plans are not directly applicable to specific projects. In the Final Statement of Reasons for the Amendments to the CEQA Guidelines, the CNRA observed that "[t]he [Scoping Plan] may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA, 2009). However, under the 2008 and 2017 Scoping Plans there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified, most of which focus on area source emissions and changes to the vehicle fleet and associated fuels among others which are not applicable to individual development projects. The proposed project would comply with all applicable regulations adopted in furtherance of the 2008 and 2017 Scoping Plans to the extent required by law.

Table 5.3 highlights measures that have been developed under the 2008 and 2017 Scoping Plans and the proposed project's consistency with those measures.

Table 5.3: Project Consistency with CARB Scoping Plan

Scoping Plan Measure	Measure Number	Project Consistency
Transportation Sector		
1.5 million zero-emission and plug-in hybrid light-duty electric vehicles by 2025 (4.2 million Zero-Emissions Vehicles by 2030)	N/A	The proposed project would include 263 electric vehicle charging stations in exceedance of the City's requirements.
Regional Transportation-Related GHG Targets	T-3	CARB has adopted its regional transportation-related GHG targets in furtherance of SB 375. Those targets do not apply directly to the proposed project, and instead are considered by MPOs (like SANDAG) when developing their Sustainable Communities Strategies. See below for discussion of the proposed project's consistency with SANDAG's RTP/SCS.
Reduction in Vehicle Miles Traveled	N/A	The proposed project is located on an infill site that is in close proximity to multi-modal transportation options. Further, the proposed project would provide needed residential opportunities (including affordable housing units) in the City of Encinitas.
Electricity and Natural Gas Sector		
Energy Efficiency Measures (Electricity)	E-1	The proposed project would comply with Title 24, Part 6, building energy efficiency standards applicable at the time of building permit application. Further, as described above, the proposed project includes numerous design features that would reduce natural gas consumption, promote building electrification, and achieve other efficiencies relative to the consumption of energy.
Energy Efficiency (Natural Gas)	CR-1	The proposed project would comply with Title 24, Part 6, building energy efficiency standards applicable at the time of building permit application. As discussed above, the proposed project also includes other design attributes to reduce natural gas consumption, including the elimination of natural gas fireplaces, from the design of the residential units.
Solar Water Heating (California Solar Initiative Thermal Program)	CR-2	The proposed project would install a solar hot water heater on both the pool and the restaurant.
Renewable Portfolios Standard	E-3	The proposed project would use energy supplied by San Diego Gas and Electric, which is in compliance with the Renewable Portfolio Standard. SDG&E expects an approximate 44% renewables mix in calendar year 2024.
Senate Bill 1 Million Solar Roofs (California Solar Initiative, New Solar Home Partnership, Public Utility Programs) and Earlier Solar Programs	E-4	The proposed project would include a 434 kW solar photovoltaic system located on the roof and carports.

Table 5.3: Project Consistency with CARB Scoping Plan

Scoping Plan Measure	Measure Number	Project Consistency
Water Sector		
Water Use Efficiency	W-1	The proposed project would utilize water saving features, including low-flow fixtures and water-efficient landscape irrigation.
Water Recycling	W-2	The proposed project would utilize reclaimed water and would include waste piping to permit the reuse of greywater.
Reuse Urban Runoff	W-4	The proposed project would include low impact development measures to the extent feasible to reduce the amount of stormwater runoff from the site.
Green Buildings		
State Green Building Initiative: Leading the Way with State Buildings (Greening New and Existing State Buildings)	GB-1	The proposed project would be required to be constructed in compliance with state and local green building standards in effect at the time of building construction.
Green Building Standards Code (Greening New Public Schools, Residential and Commercial Buildings)	GB-2	The proposed project's buildings would meet green building standards that are in effect at the time of building permit application.
Beyond Code: Voluntary Programs at the Local Level (Greening New Public Schools, Residential and Commercial Buildings)	GB-3	The proposed project would be required to be constructed in compliance with local green building standards in effect at the time of building permit application.
Industry Sector		
Recycling and Waste Management Sector		
Mandatory Commercial Recycling	RW-3	This measure applies to commercial projects. However, during both construction and operation of the proposed project, the proposed project would comply with all state regulations related to solid waste generation, storage, and disposal, including the California Integrated Waste Management Act, as amended. During construction, all waste would be recycled to the maximum extent possible.
Forests Sector		
High Global Warming Potential Gases Sector		
Limit High Global Warming Potential Use in Consumer Products	H-4	The proposed project's residents would use consumer products that would comply with the regulations that are in effect at the time of manufacture.
Agriculture Sector		
Methane Capture at Large Dairies	A-1	This measure does not apply to the proposed project because it applies to capturing methane at large dairies. The proposed project would not inhibit CARB from implementing this Scoping Plan Measure.

Sources: CARB 2008, 2017b.
Notes: GHG = greenhouse gas; Proposed Project = Fox Point Farms Project; CARB = California Air Resources Board; EV = electric vehicle; SF_6 = sulfur hexafluoride.

Based on this analysis and the items listed in Table 5.3, the proposed project would be consistent with the applicable strategies and measures in the 2008 and 2017 Scoping Plans.

In addition to the measures outlined in the Table 5.3, the 2008 and 2017 Scoping Plans also highlight, in several areas, the goals and importance of infill projects. Specifically, the Scoping Plans encourage infill projects and characterize them as crucial to achieving the State's long-term climate goals. The Plans encourage accelerating equitable and affordable infill development through enhanced financing and policy incentives and mechanisms.

In addition to the statewide measures presented in Table 5.3, the 2017 Scoping Plan presented a suite of local actions that agencies can take to reduce GHG emissions, as found within Appendix B of the Scoping Plan (CARB 2017). The proposed project's consistency with the 2017 Scoping Plan's list of potentially feasible local actions is presented in Table 5.4.

Table 5.4: Project Consistency with Scoping Plan Local Actions

Scoping Plan Local Action	Project Consistency
Construction	
Enforce idling time restrictions for construction vehicles	The proposed project will enforce unnecessary idling to 5 minutes, in accordance with CARB's Off-Road Regulation.
Divert and recycle construction and demolition waste, and use locally-sourced building materials with a high recycled material content to the greatest extent feasible	The proposed project will divert and recycle construction and demolition waste in accordance with all applicable rules and regulations.
Minimize tree removal, and mitigate indirect GHG emissions increases that occur due to vegetation removal, loss of sequestration, and soil disturbance	The proposed project would provide for more trees on-site than exist under existing conditions through landscaping.
Utilize existing grid power for electric energy rather than operating temporary gasoline/diesel powered generators	The proposed project will rely on existing grid power for electric energy to the extent feasible and practical.
Operation	
Require on-site EV charging capabilities for parking spaces serving the project to meet jurisdiction-wide EV proliferation goals	The proposed project will include 263 EV installed spaces, exceeding the City's requirements.
Provide adequate, safe, convenient, and secure on-site bicycle parking and storage in multi-family residential projects and in non-residential projects	The proposed project will include on-site bicycle parking and storage for residents, as well as a bike-share program.
Require on-site renewable energy generation	The proposed project will include a 434 kW solar photovoltaic system located on rooftop mounted arrays.
Prohibit wood-burning fireplaces in new development, and require replacement of wood-burning fireplaces for renovations over a certain size developments	The proposed project will not include fireplaces or wood-burning stoves.
Require solar-ready roofs	The proposed project will include a 434 kW solar photovoltaic system located on rooftop mounted arrays.
Require low-water landscaping in new developments	The proposed project will include water-efficient landscaping techniques, including drip irrigation.

Table 5.4: Project Consistency with Scoping Plan Local Actions

Scoping Plan Local Action	Project Consistency
Expand urban forestry and green infrastructure in new land development	The proposed project would provide for more trees on-site than exist under existing conditions through landscaping.
Require the design of the electric outlets and/or wiring in new residential unit garages to promote electric vehicle usage	The proposed project will include 263 EV installed spaces, exceeding the City's requirements.
Require each residential unit to be "solar ready," including installing the appropriate hardware and proper structural engineering	The proposed project will be designed to include a solar PV rooftop system that would be rated at 434 kW direct current.
Require the installation of energy conserving appliances such as on-demand tank-less water heaters and whole-house fans	The proposed project will include the use of energy conserving appliances, such as ENERGYSTAR labeled.
Require each residential and commercial building equip buildings with energy efficient AC units and heating systems with programmable thermostats/timers	The proposed project will equip each residential unit with programmable thermostats to control the heating and AC system.
Require each residential and commercial building to utilize low flow water fixtures such as low flow toilets and faucets	The proposed project would include low-flow or high-efficiency water fixtures (toilet, showerhead, clothes washer, etc.).
Require the use of energy-efficient lighting for all street, parking, and area lighting	The proposed project will include the use of LED lighting or other efficient lighting for at least 75% of the total luminaires.
Require the landscaping design for parking lots to utilize tree cover and compost/mulch	The proposed project would provide for more trees on-site than exist under existing conditions through landscaping.

Source: CARB 2017b.
Notes: GHG = greenhouse gas; Proposed Project = The Fox Point Farms Project; CARB = California Air Resources Board; EV = electric vehicle; SF_6 = sulfur hexafluoride.

As shown in Table 5.4, the proposed project would be consistent with applicable local actions set forth within Appendix B of the 2017 Scoping Plan.

Consistency with SANDAG's San Diego Forward: The Regional Plan

SANDAG's Regional Plan is a regional growth-management strategy that targets per-capita GHG reduction from passenger vehicles and light-duty trucks in the San Diego region. The Regional Plan integrates land use and transportation strategies to meet GHG emissions reduction targets that are forecasted to achieve the state's 2035 and 2050 GHG reduction goals. The Regional Plan incorporates local land use projections and circulation networks in city and county general plans. Typically, a project would be consistent with the Regional Plan if it does not exceed the underlying growth assumptions within the Regional Plan.

Implementation of the proposed project would result in an increase in 249 residential units (250 less the one existing onsite residence). The proposed project is part of the City's

Housing Element Update, and is consistent with the City's Fifth Cycle Housing Element, adopted in 2019, which anticipated between 246 and 296 units on the project site. As provided for therein, the City of Encinitas was behind in providing for a legally compliant Housing Element to meet the City's share of the Regional Housing Needs Assessment from SANDAG. Through the 2019 Housing Element Update, the City projected a deficit of 1,062 very-low and low income units and 238 moderate and above moderate income units (City of Encinitas). The City has updated SANDAG with growth projections approved by the City within the Housing Element. Since the project has been designed in accordance with growth projections identified within the Housing Element, the proposed project would not conflict with SANDAG's regional growth forecast for the City.

The proposed project would include site design elements and project design features developed to support the policy objectives of the RTP/SCS and SB 375. Table 5.5 illustrates the proposed project's consistency with all applicable goals and policies of SANDAG's Regional Plan (SANDAG 2015).

Table 5.5: San Diego Forward: The Regional Plan Consistency Analysis

Category	Policy Objective or Strategy	Consistency Analysis
The Regional Plan – Policy Objectives		
Mobility Choices	Provide safe, secure, healthy, affordable, and convenient travel choices between the places where people live, work, and play.	*Consistent.* The proposed project incorporates smart growth and sustainable design principles in its development plan. More specifically, the proposed project's design puts people in areas that are accessible to public transit. The design and locational attributes of the proposed project positively emphasize particular commuting choices and convenient access to the rest of the City and the region.
Mobility Choices	Take advantage of new technologies to make the transportation system more efficient and environmentally friendly.	*Consistent.* The proposed project includes 250 garage and 13 visitor EV charging stations to support EV adoption. Additionally, the proposed project would not impair SANDAG's ability to employ new technologies to make travel more reliable and convenient.
Habitat and Open Space Preservation	Focus growth in areas that are already urbanized, allowing the region to set aside and restore more open space in our less developed areas.	*Consistent*. The proposed project would be located close to major urban and employment centers. As such, the project proposes to develop future housing opportunities in an infill location that capitalizes on existing infrastructure rather than other non-developed areas—including open space areas, sensitive habitats, or areas otherwise constrained

Table 5.5: San Diego Forward: The Regional Plan Consistency Analysis

Category	Policy Objective or Strategy	Consistency Analysis
		due to topography, flooding, or other factors.
Healthy and Complete Communities	Create great places for everyone to live, work, and play.	*Consistent*. The proposed project proposes new residential development in an infill location that would integrate residents into the existing community. The proposed project's location allows ease of access to regional shopping, entertainment, and employment.
Healthy and Complete Communities	Connect communities through a variety of transportation choices that promote healthy lifestyles, including walking and biking.	*Consistent*. The proposed project location would provide residents with the opportunity to access employment, recreational, and commercial uses via multiple modes of transportation. The proposed project would also encourage non-vehicular modes of transportation through its proximate location to nearby amenities.
Environmental Stewardship	Make transportation investments that result in cleaner air, environmental protection, conservation, efficiency, and sustainable living.	*Consistent*. While the proposed project does not require a transportation investment from SANDAG, it is noted that the proposed project would include numerous design attributes that reduce natural gas consumption, promote building electrification, enhance the efficiency of energy and water consumption, and facilitate the use of zero emission vehicles.
Environmental Stewardship	Support energy programs that promote sustainability.	*Consistent*. The proposed project would include numerous design attributes that reduce natural gas consumption, promote building electrification, enhance the efficiency of energy and water consumption, and facilitate the use of zero emission vehicles.
Sustainable Communities Strategy – Strategies		
Strategy #1	Focus housing and job growth in urbanized areas where there is existing and planned transportation infrastructure, including transit.	*Consistent.* The proposed project would be located on an infill site close to urban and employment centers. The Project site is located along Leucadia Boulevard, which is served by NCTD Bus Route 304. The closest Route 304 stop is located south of the Project site, on Leucadia Boulevard, adjacent to the Project site. Route 304 provides connections to the Coaster's Encinitas station, providing Project residents with transit network opportunities to facilitate their travel.
Strategy #2	Protect the environment and help ensure the success of smart growth land use policies by preserving sensitive habitat, open space, cultural resources, and farmland.	*Consistent.* The proposed project would be located on an infill site close to major urban and employment centers. As such, the project proposes to develop future housing opportunities in an infill location

Table 5.5: San Diego Forward: The Regional Plan Consistency Analysis

Category	Policy Objective or Strategy	Consistency Analysis
		that capitalizes on existing infrastructure rather than other non-developed areas—including open space areas, sensitive habitats, or areas otherwise constrained due to topography, flooding, or other factors.
Strategy #3	Invest in a transportation network that gives people transportation choices and reduces greenhouse gas emissions.	*Consistent.* The proposed project would help reduce greenhouse gas emissions from vehicles in the region compared to a non-infill project. The closest Route 304 stop is located south of the Project site, on Leucadia Boulevard, adjacent to the Project site. Route 304 provides connections to the Coaster's Encinitas station, providing Project residents with transit network opportunities to facilitate their travel.
Strategy #4	Address the housing needs of all economic segments of the population.	*Consistent.* The proposed project includes both market rate and affordable units to support all economic segments of the population.
Strategy #5	Implement the Regional Plan through incentives and collaboration.	*Not Applicable.* The proposed project would not impair the ability of SANDAG to implement the Regional Transportation Plan through incentives and collaborations.

Source: SANDAG 2015.
Notes: City = City of Encinitas; Proposed Project = Fox Point Farms Project; VMT = vehicle miles traveled; SANDAG = San Diego Association of Governments; EV = electric vehicle.

As shown in Table 5.6, the proposed project would be consistent with all applicable Regional Plan policy objectives or strategies. SANDAG worked with the local jurisdictions to identify Regional Housing Needs Assessment allocation options that meet the four goals of housing element law (Government Code Section 65484[d][1]–[4]) within the Regional Plan. The second of the four objectives of the SANDAG Regional Housing Needs Assessment is to promote infill development and socioeconomic equity, the protection of environmental and agricultural resources, and the encouragement of efficient development patterns. Also, one of the key achievements projected for the Regional Plan is for nearly three-quarters of multifamily housing to be built on redevelopment or infill sites. The proposed project would be consistent with that goal as it would be developed on an infill site.

In summary, the proposed project is consistent with the statewide GHG reduction goals addressed in CARB's 2008 and 2017 Scoping Plans, SANDAG's Regional Plan, OPR's Discussion Draft Advisory, and SMAQMD's GHG Best Management Practices. The proposed project's consistency stems from its location on an urban, infill site; its numerous design attributes that

serve to reduce natural gas consumption, promote building electrification, and achieve other efficiencies in the consumption of energy, water and transportation fuels; and, its provision of residential opportunities (including affordable units) in a jurisdiction with the need for more housing. Therefore, the proposed project would be consistent with the statewide GHG reduction goals set forth in AB 32, SB 32 and EO S-3-05. Impacts would be **less than significant**.

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7.0 CERTIFICATIONS

The contents of this report represent an accurate depiction of the projected CO_2e emissions from the project development based upon the best available information at the time of preparation.

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Date August 18, 2020

ATTACHMENT A

CalEEMod 2016.3.2

Fox Point

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	156.00	Space	1.40	62,400.00	0
Quality Restaurant	3.50	1000sqft	0.48	3,500.00	0
Recreational Swimming Pool	1.80	1000sqft	0.04	1,800.00	0
Apartments Mid Rise	197.00	Dwelling Unit	13.60	197,000.00	563
Condo/Townhouse	53.00	Dwelling Unit	5.96	53,000.00	152

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	452.42	**CH4 Intensity (lb/MWhr)**	0.018	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - RPS 2024

Land Use - 21.48 acres

Construction Phase - cs

Trips and VMT -

Demolition -

Grading -

Architectural Coating - Rule 67 Paint

Vehicle Trips - Restaurant trips were modifid to reflect the total ADT of 1690 ADT per Traffic Study... VMT per trip is 6 miles based on TS.

Woodstoves - project would not install hearths

Area Coating - Rule 67 Paints

Energy Use -

Water And Wastewater - Corrected Water use per Water Study by Dexter Wilson Engineering Feb 2020-no correction taken for existing water useage 20,269,839 gallons per year. Proposed Use would 49,457,500 gallons per year or 135500 gpd * 365 d. Ratios based on CalEEMod defaults

Solid Waste -

Construction Off-road Equipment Mitigation - Tier 4 with DPF

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	100.00
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tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_EF_Nonresidential_Interior	250	100

tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	100
tblAreaCoating	Area_EF_Residential_Interior	250	100
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tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

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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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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstructionPhase	NumDays	370.00	341.00
tblConstructionPhase	NumDays	20.00	22.00
tblConstructionPhase	NumDays	35.00	51.00
tblConstructionPhase	NumDays	10.00	15.00
tblFireplaces	NumberGas	108.35	0.00
tblFireplaces	NumberGas	29.15	0.00
tblFireplaces	NumberNoFireplace	19.70	197.00
tblFireplaces	NumberNoFireplace	5.30	53.00

tblFireplaces	NumberWood	68.95	0.00
tblFireplaces	NumberWood	18.55	0.00
tblGrading	MaterialImported	0.00	10,000.00
tblLandUse	LotAcreage	0.08	0.48
tblLandUse	LotAcreage	5.18	13.60
tblLandUse	LotAcreage	3.31	5.96
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.018
tblProjectCharacteristics	CO2IntensityFactor	720.49	452.42
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HO_TTP	39.60	40.00
tblVehicleTrips	HO_TTP	39.60	40.00
tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HS_TTP	18.80	18.00
tblVehicleTrips	HS_TTP	18.80	18.00
tblVehicleTrips	HW_TL	10.80	6.00
tblVehicleTrips	HW_TL	10.80	6.00
tblVehicleTrips	HW_TTP	41.60	42.00
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tblVehicleTrips	ST_TR	5.67	8.00
tblVehicleTrips	ST_TR	94.36	24.00
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	SU_TR	5.86	6.00
tblVehicleTrips	SU_TR	4.84	8.00

tblVehicleTrips	SU_TR	72.16	24.00
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	WD_TR	6.65	6.00
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tblVehicleTrips	WD_TR	89.95	24.00
tblVehicleTrips	WD_TR	33.82	0.00
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tblWater	IndoorWaterUseRate	3,453,163.36	6,130,278.00
tblWater	IndoorWaterUseRate	1,062,367.99	1,885,984.00
tblWater	IndoorWaterUseRate	106,457.66	188,990.00
tblWater	OutdoorWaterUseRate	8,091,846.70	14,365,167.00
tblWater	OutdoorWaterUseRate	2,176,994.29	3,864,740.00
tblWater	OutdoorWaterUseRate	67,810.72	120,382.00
tblWater	OutdoorWaterUseRate	65,248.24	115,833.00
tblWoodstoves	NumberCatalytic	9.85	0.00
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tblWoodstoves	NumberNoncatalytic	9.85	0.00
tblWoodstoves	NumberNoncatalytic	2.65	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	0.2867	2.9502	2.1719	5.1300e-003	0.5588	0.1230	0.6818	0.2073	0.1140	0.3212	0.0000	462.6874	462.6874	0.0995	0.0000	465.1741
2022	1.7134	2.6194	2.9732	7.0300e-003	0.2606	0.1103	0.3709	0.0700	0.1039	0.1739	0.0000	629.1584	629.1584	0.0872	0.0000	631.3388
2023	0.2308	0.1398	0.1757	4.2000e-004	0.0161	5.7200e-003	0.0218	4.3200e-003	5.4100e-003	9.7200e-003	0.0000	37.3451	37.3451	5.0000e-003	0.0000	37.4701
Maximum	**1.7134**	**2.9502**	**2.9732**	**7.0300e-003**	**0.5588**	**0.1230**	**0.6818**	**0.2073**	**0.1140**	**0.3212**	**0.0000**	**629.1584**	**629.1584**	**0.0995**	**0.0000**	**631.3388**

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	0.0821	0.6202	2.2983	5.1300e-003	0.5588	2.3300e-003	0.5612	0.2073	2.2500e-003	0.2095	0.0000	462.6871	462.6871	0.0995	0.0000	465.1738
2022	1.5285	0.8383	3.1164	7.0300e-003	0.2606	3.3200e-003	0.2639	0.0700	3.1500e-003	0.0732	0.0000	629.1580	629.1580	0.0872	0.0000	631.3385
2023	0.2207	0.0428	0.1849	4.2000e-004	0.0161	1.7000e-004	0.0163	4.3200e-003	1.6000e-004	4.4800e-003	0.0000	37.3451	37.3451	5.0000e-003	0.0000	37.4701
Maximum	**1.5285**	**0.8383**	**3.1164**	**7.0300e-003**	**0.5588**	**3.3200e-003**	**0.5612**	**0.2073**	**3.1500e-003**	**0.2095**	**0.0000**	**629.1580**	**629.1580**	**0.0995**	**0.0000**	**631.3385**

Fox Point - San Diego 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	N20	CO2e
Percent Reduction	**17.91**	**73.70**	**-5.24**	**0.00**	**0.00**	**97.56**	**21.70**	**0.00**	**97.51**	**43.12**	**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	**6-1-2021**	**8-31-2021**	1.6561	0.3161
2	**9-1-2021**	**11-30-2021**	1.2796	0.2889
3	**12-1-2021**	**2-28-2022**	0.7435	0.2468
4	**3-1-2022**	**5-31-2022**	0.7307	0.2457
5	**6-1-2022**	**8-31-2022**	0.7292	0.2442
6	**9-1-2022**	**11-30-2022**	1.6882	1.1768
7	**12-1-2022**	**2-28-2023**	1.0853	0.8039
		Highest	1.6882	1.1768

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	1.2089	0.0214	1.8570	1.0000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	3.0351	3.0351	2.9200e-003	0.0000	3.1080
Energy	0.0153	0.1325	0.0688	8.3000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	400.1660	400.1660	0.0128	4.9700e-003	401.9684
Mobile	0.3603	1.4095	3.7924	0.0131	1.2111	0.0105	1.2216	0.3243	9.7300e-003	0.3340	0.0000	1,212.2790	1,212.2790	0.0635	0.0000	1,213.8658
Waste						0.0000	0.0000		0.0000	0.0000	26.0742	0.0000	26.0742	1.5409	0.0000	64.5977
Water						0.0000	0.0000		0.0000	0.0000	9.8321	124.9134	134.7455	1.0148	0.0250	167.5510
Total	**1.5845**	**1.5634**	**5.7182**	**0.0140**	**1.2111**	**0.0313**	**1.2424**	**0.3243**	**0.0306**	**0.3549**	**35.9063**	**1,740.3935**	**1,776.2998**	**2.6350**	**0.0299**	**1,851.0910**

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	1.2089	0.0214	1.8570	1.0000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	3.0351	3.0351	2.9200e-003	0.0000	3.1080
Energy	0.0153	0.1325	0.0688	8.3000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	360.6885	360.6885	0.0112	4.6300e-003	362.3476
Mobile	0.3603	1.4095	3.7924	0.0131	1.2111	0.0105	1.2216	0.3243	9.7300e-003	0.3340	0.0000	1,212.2790	1,212.2790	0.0635	0.0000	1,213.8658
Waste						0.0000	0.0000		0.0000	0.0000	13.0371	0.0000	13.0371	0.7705	0.0000	32.2989
Water						0.0000	0.0000		0.0000	0.0000	7.8657	73.7221	81.5878	0.8108	0.0197	107.7370
Total	**1.5845**	**1.5634**	**5.7182**	**0.0140**	**1.2111**	**0.0313**	**1.2424**	**0.3243**	**0.0306**	**0.3549**	**20.9028**	**1,649.7246**	**1,670.6274**	**1.6589**	**0.0244**	**1,719.3573**

	ROG	NOx	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**	**41.79**	**5.21**	**5.95**	**37.04**	**18.58**	**7.12**

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	6/1/2021	6/30/2021	5	22	
2	Site Preparation	Site Preparation	7/1/2021	7/21/2021	5	15	
3	Grading	Grading	7/22/2021	9/30/2021	5	51	
4	Paving	Paving	9/1/2021	9/28/2021	5	20	
5	Building Construction	Building Construction	10/1/2021	1/20/2023	5	341	
6	Architectural Coating	Architectural Coating	10/1/2022	1/13/2023	5	75	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 127.5

Acres of Paving: 1.4

Residential Indoor: 506,250; Residential Outdoor: 168,750; Non-Residential Indoor: 5,250; Non-Residential Outdoor: 1,750; Striped Parking Area: 3,744 (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
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
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
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	1,038.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	989.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	208.00	38.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	42.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

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					0.1138	0.0000	0.1138	0.0172	0.0000	0.0172	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0348	0.3459	0.2372	4.3000e-004		0.0171	0.0171		0.0159	0.0159	0.0000	37.4009	37.4009	0.0105	0.0000	37.6640
Total	**0.0348**	**0.3459**	**0.2372**	**4.3000e-004**	**0.1138**	**0.0171**	**0.1308**	**0.0172**	**0.0159**	**0.0331**	**0.0000**	**37.4009**	**37.4009**	**0.0105**	**0.0000**	**37.6640**

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	3.9000e-003	0.1355	0.0334	4.0000e-004	8.8800e-003	4.1000e-004	9.2900e-003	2.4400e-003	3.9000e-004	2.8300e-003	0.0000	39.5281	39.5281	3.5700e-003	0.0000	39.6173
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	5.7000e-004	4.1000e-004	4.1200e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1559	1.1559	3.0000e-005	0.0000	1.1567
Total	**4.4700e-003**	**0.1360**	**0.0376**	**4.1000e-004**	**0.0102**	**4.2000e-004**	**0.0106**	**2.7900e-003**	**4.0000e-004**	**3.1900e-003**	**0.0000**	**40.6840**	**40.6840**	**3.6000e-003**	**0.0000**	**40.7740**

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					0.1138	0.0000	0.1138	0.0172	0.0000	0.0172	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0900e-003	0.0220	0.2561	4.3000e-004		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	37.4008	37.4008	0.0105	0.0000	37.6640
Total	**5.0900e-003**	**0.0220**	**0.2561**	**4.3000e-004**	**0.1138**	**1.0000e-004**	**0.1139**	**0.0172**	**1.0000e-004**	**0.0173**	**0.0000**	**37.4008**	**37.4008**	**0.0105**	**0.0000**	**37.6640**

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	3.9000e-003	0.1355	0.0334	4.0000e-004	8.8800e-003	4.1000e-004	9.2900e-003	2.4400e-003	3.9000e-004	2.8300e-003	0.0000	39.5281	39.5281	3.5700e-003	0.0000	39.6173
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	5.7000e-004	4.1000e-004	4.1200e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1559	1.1559	3.0000e-005	0.0000	1.1567
Total	**4.4700e-003**	**0.1360**	**0.0376**	**4.1000e-004**	**0.0102**	**4.2000e-004**	**0.0106**	**2.7900e-003**	**4.0000e-004**	**3.1900e-003**	**0.0000**	**40.6840**	**40.6840**	**3.6000e-003**	**0.0000**	**40.7740**

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					0.1355	0.0000	0.1355	0.0745	0.0000	0.0745	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0292	0.3037	0.1587	2.9000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	25.0768	25.0768	8.1100e-003	0.0000	25.2796
Total	**0.0292**	**0.3037**	**0.1587**	**2.9000e-004**	**0.1355**	**0.0153**	**0.1508**	**0.0745**	**0.0141**	**0.0886**	**0.0000**	**25.0768**	**25.0768**	**8.1100e-003**	**0.0000**	**25.2796**

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	4.7000e-004	3.3000e-004	3.3700e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0900e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.9457	0.9457	3.0000e-005	0.0000	0.9464
Total	**4.7000e-004**	**3.3000e-004**	**3.3700e-003**	**1.0000e-005**	**1.0800e-003**	**1.0000e-005**	**1.0900e-003**	**2.9000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.9457**	**0.9457**	**3.0000e-005**	**0.0000**	**0.9464**

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					0.1355	0.0000	0.1355	0.0745	0.0000	0.0745	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4900e-003	0.0151	0.1565	2.9000e-004		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	25.0768	25.0768	8.1100e-003	0.0000	25.2795
Total	**3.4900e-003**	**0.0151**	**0.1565**	**2.9000e-004**	**0.1355**	**7.0000e-005**	**0.1356**	**0.0745**	**7.0000e-005**	**0.0746**	**0.0000**	**25.0768**	**25.0768**	**8.1100e-003**	**0.0000**	**25.2795**

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	4.7000e-004	3.3000e-004	3.3700e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0900e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.9457	0.9457	3.0000e-005	0.0000	0.9464
Total	**4.7000e-004**	**3.3000e-004**	**3.3700e-003**	**1.0000e-005**	**1.0800e-003**	**1.0000e-005**	**1.0900e-003**	**2.9000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.9457**	**0.9457**	**3.0000e-005**	**0.0000**	**0.9464**

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					0.2212	0.0000	0.2212	0.0917	0.0000	0.0917	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1069	1.1832	0.7874	1.5800e-003		0.0506	0.0506		0.0466	0.0466	0.0000	138.9622	138.9622	0.0449	0.0000	140.0858
Total	**0.1069**	**1.1832**	**0.7874**	**1.5800e-003**	**0.2212**	**0.0506**	**0.2718**	**0.0917**	**0.0466**	**0.1383**	**0.0000**	**138.9622**	**138.9622**	**0.0449**	**0.0000**	**140.0858**

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	3.7100e-003	0.1292	0.0319	3.8000e-004	8.4600e-003	3.9000e-004	8.8500e-003	2.3200e-003	3.7000e-004	2.7000e-003	0.0000	37.6622	37.6622	3.4000e-003	0.0000	37.7471
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	1.7700e-003	1.2600e-003	0.0127	4.0000e-005	4.0900e-003	3.0000e-005	4.1200e-003	1.0900e-003	3.0000e-005	1.1100e-003	0.0000	3.5727	3.5727	1.0000e-004	0.0000	3.5752
Total	**5.4800e-003**	**0.1304**	**0.0446**	**4.2000e-004**	**0.0126**	**4.2000e-004**	**0.0130**	**3.4100e-003**	**4.0000e-004**	**3.8100e-003**	**0.0000**	**41.2348**	**41.2348**	**3.5000e-003**	**0.0000**	**41.3224**

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					0.2212	0.0000	0.2212	0.0917	0.0000	0.0917	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.0842	0.8415	1.5800e-003		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004	0.0000	138.9620	138.9620	0.0449	0.0000	140.0856
Total	**0.0194**	**0.0842**	**0.8415**	**1.5800e-003**	**0.2212**	**3.9000e-004**	**0.2216**	**0.0917**	**3.9000e-004**	**0.0921**	**0.0000**	**138.9620**	**138.9620**	**0.0449**	**0.0000**	**140.0856**

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	3.7100e-003	0.1292	0.0319	3.8000e-004	8.4600e-003	3.9000e-004	8.8500e-003	2.3200e-003	3.7000e-004	2.7000e-003	0.0000	37.6622	37.6622	3.4000e-003	0.0000	37.7471
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	1.7700e-003	1.2600e-003	0.0127	4.0000e-005	4.0900e-003	3.0000e-005	4.1200e-003	1.0900e-003	3.0000e-005	1.1100e-003	0.0000	3.5727	3.5727	1.0000e-004	0.0000	3.5752
Total	**5.4800e-003**	**0.1304**	**0.0446**	**4.2000e-004**	**0.0126**	**4.2000e-004**	**0.0130**	**3.4100e-003**	**4.0000e-004**	**3.8100e-003**	**0.0000**	**41.2348**	**41.2348**	**3.5000e-003**	**0.0000**	**41.3224**

3.5 Paving - 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					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	1.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0144**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.5 Paving - 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	5.2000e-004	3.7000e-004	3.7500e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0508	1.0508	3.0000e-005	0.0000	1.0515
Total	**5.2000e-004**	**3.7000e-004**	**3.7500e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0508**	**1.0508**	**3.0000e-005**	**0.0000**	**1.0515**

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		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	1.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.6300e-003**	**0.0122**	**0.1730**	**2.3000e-004**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.5 Paving - 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	5.2000e-004	3.7000e-004	3.7500e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0508	1.0508	3.0000e-005	0.0000	1.0515
Total	**5.2000e-004**	**3.7000e-004**	**3.7500e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0508**	**1.0508**	**3.0000e-005**	**0.0000**	**1.0515**

3.6 Building Construction - 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					
Off-Road	0.0627	0.5753	0.5470	8.9000e-004		0.0316	0.0316		0.0297	0.0297	0.0000	76.4403	76.4403	0.0184	0.0000	76.9013
Total	**0.0627**	**0.5753**	**0.5470**	**8.9000e-004**		**0.0316**	**0.0316**		**0.0297**	**0.0297**	**0.0000**	**76.4403**	**76.4403**	**0.0184**	**0.0000**	**76.9013**

3.6 Building Construction - 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	3.8800e-003	0.1289	0.0344	3.4000e-004	8.3200e-003	2.7000e-004	8.6000e-003	2.4000e-003	2.6000e-004	2.6600e-003	0.0000	32.7846	32.7846	2.4300e-003	0.0000	32.8454
Worker	0.0239	0.0170	0.1715	5.3000e-004	0.0550	3.9000e-004	0.0554	0.0146	3.6000e-004	0.0150	0.0000	48.0839	48.0839	1.3800e-003	0.0000	48.1183
Total	**0.0277**	**0.1459**	**0.2059**	**8.7000e-004**	**0.0634**	**6.6000e-004**	**0.0640**	**0.0170**	**6.2000e-004**	**0.0177**	**0.0000**	**80.8685**	**80.8685**	**3.8100e-003**	**0.0000**	**80.9637**

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	0.0108	0.0738	0.5762	8.9000e-004		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	76.4402	76.4402	0.0184	0.0000	76.9013
Total	**0.0108**	**0.0738**	**0.5762**	**8.9000e-004**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**76.4402**	**76.4402**	**0.0184**	**0.0000**	**76.9013**

3.6 Building Construction - 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	3.8800e-003	0.1289	0.0344	3.4000e-004	8.3200e-003	2.7000e-004	8.6000e-003	2.4000e-003	2.6000e-004	2.6600e-003	0.0000	32.7846	32.7846	2.4300e-003	0.0000	32.8454
Worker	0.0239	0.0170	0.1715	5.3000e-004	0.0550	3.9000e-004	0.0554	0.0146	3.6000e-004	0.0150	0.0000	48.0839	48.0839	1.3800e-003	0.0000	48.1183
Total	**0.0277**	**0.1459**	**0.2059**	**8.7000e-004**	**0.0634**	**6.6000e-004**	**0.0640**	**0.0170**	**6.2000e-004**	**0.0177**	**0.0000**	**80.8685**	**80.8685**	**3.8100e-003**	**0.0000**	**80.9637**

3.6 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	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

3.6 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	0.0142	0.4794	0.1282	1.3100e-003	0.0328	9.3000e-004	0.0337	9.4700e-003	8.8000e-004	0.0104	0.0000	127.9283	127.9283	9.2900e-003	0.0000	128.1605
Worker	0.0890	0.0611	0.6272	2.0200e-003	0.2168	1.5000e-003	0.2183	0.0576	1.3800e-003	0.0590	0.0000	182.4776	182.4776	4.9700e-003	0.0000	182.6019
Total	**0.1032**	**0.5406**	**0.7554**	**3.3300e-003**	**0.2496**	**2.4300e-003**	**0.2521**	**0.0671**	**2.2600e-003**	**0.0694**	**0.0000**	**310.4059**	**310.4059**	**0.0143**	**0.0000**	**310.7623**

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	0.0426	0.2905	2.2698	3.5000e-003		8.0000e-004	8.0000e-004		8.0000e-004	8.0000e-004	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.0426**	**0.2905**	**2.2698**	**3.5000e-003**		**8.0000e-004**	**8.0000e-004**		**8.0000e-004**	**8.0000e-004**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

3.6 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	0.0142	0.4794	0.1282	1.3100e-003	0.0328	9.3000e-004	0.0337	9.4700e-003	8.8000e-004	0.0104	0.0000	127.9283	127.9283	9.2900e-003	0.0000	128.1605
Worker	0.0890	0.0611	0.6272	2.0200e-003	0.2168	1.5000e-003	0.2183	0.0576	1.3800e-003	0.0590	0.0000	182.4776	182.4776	4.9700e-003	0.0000	182.6019
Total	**0.1032**	**0.5406**	**0.7554**	**3.3300e-003**	**0.2496**	**2.4300e-003**	**0.2521**	**0.0671**	**2.2600e-003**	**0.0694**	**0.0000**	**310.4059**	**310.4059**	**0.0143**	**0.0000**	**310.7623**

3.6 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	0.0118	0.1079	0.1218	2.0000e-004		5.2500e-003	5.2500e-003		4.9400e-003	4.9400e-003	0.0000	17.3854	17.3854	4.1400e-003	0.0000	17.4888
Total	**0.0118**	**0.1079**	**0.1218**	**2.0000e-004**		**5.2500e-003**	**5.2500e-003**		**4.9400e-003**	**4.9400e-003**	**0.0000**	**17.3854**	**17.3854**	**4.1400e-003**	**0.0000**	**17.4888**

3.6 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	6.3000e-004	0.0217	6.7300e-003	7.0000e-005	1.8900e-003	3.0000e-005	1.9200e-003	5.5000e-004	2.0000e-005	5.7000e-004	0.0000	7.1947	7.1947	4.9000e-004	0.0000	7.2069
Worker	4.8600e-003	3.2200e-003	0.0336	1.1000e-004	0.0125	8.0000e-005	0.0126	3.3200e-003	8.0000e-005	3.4000e-003	0.0000	10.1254	10.1254	2.6000e-004	0.0000	10.1320
Total	**5.4900e-003**	**0.0250**	**0.0403**	**1.8000e-004**	**0.0144**	**1.1000e-004**	**0.0145**	**3.8700e-003**	**1.0000e-004**	**3.9700e-003**	**0.0000**	**17.3201**	**17.3201**	**7.5000e-004**	**0.0000**	**17.3389**

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	2.4600e-003	0.0168	0.1310	2.0000e-004		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	17.3853	17.3853	4.1400e-003	0.0000	17.4887
Total	**2.4600e-003**	**0.0168**	**0.1310**	**2.0000e-004**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**17.3853**	**17.3853**	**4.1400e-003**	**0.0000**	**17.4887**

3.6 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	6.3000e-004	0.0217	6.7300e-003	7.0000e-005	1.8900e-003	3.0000e-005	1.9200e-003	5.5000e-004	2.0000e-005	5.7000e-004	0.0000	7.1947	7.1947	4.9000e-004	0.0000	7.2069
Worker	4.8600e-003	3.2200e-003	0.0336	1.1000e-004	0.0125	8.0000e-005	0.0126	3.3200e-003	8.0000e-005	3.4000e-003	0.0000	10.1254	10.1254	2.6000e-004	0.0000	10.1320
Total	**5.4900e-003**	**0.0250**	**0.0403**	**1.8000e-004**	**0.0144**	**1.1000e-004**	**0.0145**	**3.8700e-003**	**1.0000e-004**	**3.9700e-003**	**0.0000**	**17.3201**	**17.3201**	**7.5000e-004**	**0.0000**	**17.3389**

3.7 Architectural Coating - 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					
Archit. Coating	1.3773					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0458	0.0589	1.0000e-004		2.6600e-003	2.6600e-003		2.6600e-003	2.6600e-003	0.0000	8.2981	8.2981	5.4000e-004	0.0000	8.3116
Total	**1.3840**	**0.0458**	**0.0589**	**1.0000e-004**		**2.6600e-003**	**2.6600e-003**		**2.6600e-003**	**2.6600e-003**	**0.0000**	**8.2981**	**8.2981**	**5.4000e-004**	**0.0000**	**8.3116**

3.7 Architectural Coating - 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	4.4900e-003	3.0900e-003	0.0317	1.0000e-004	0.0110	8.0000e-005	0.0110	2.9100e-003	7.0000e-005	2.9800e-003	0.0000	9.2116	9.2116	2.5000e-004	0.0000	9.2179
Total	**4.4900e-003**	**3.0900e-003**	**0.0317**	**1.0000e-004**	**0.0110**	**8.0000e-005**	**0.0110**	**2.9100e-003**	**7.0000e-005**	**2.9800e-003**	**0.0000**	**9.2116**	**9.2116**	**2.5000e-004**	**0.0000**	**9.2179**

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	1.3773					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.7000e-004	4.1800e-003	0.0596	1.0000e-004		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.2981	8.2981	5.4000e-004	0.0000	8.3116
Total	**1.3783**	**4.1800e-003**	**0.0596**	**1.0000e-004**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.2981**	**8.2981**	**5.4000e-004**	**0.0000**	**8.3116**

3.7 Architectural Coating - 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	4.4900e-003	3.0900e-003	0.0317	1.0000e-004	0.0110	8.0000e-005	0.0110	2.9100e-003	7.0000e-005	2.9800e-003	0.0000	9.2116	9.2116	2.5000e-004	0.0000	9.2179
Total	**4.4900e-003**	**3.0900e-003**	**0.0317**	**1.0000e-004**	**0.0110**	**8.0000e-005**	**0.0110**	**2.9100e-003**	**7.0000e-005**	**2.9800e-003**	**0.0000**	**9.2116**	**9.2116**	**2.5000e-004**	**0.0000**	**9.2179**

3.7 Architectural Coating - 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					
Archit. Coating	0.2119					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.6000e-004	6.5100e-003	9.0600e-003	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	1.2766	1.2766	8.0000e-005	0.0000	1.2785
Total	**0.2129**	**6.5100e-003**	**9.0600e-003**	**1.0000e-005**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**1.2766**	**1.2766**	**8.0000e-005**	**0.0000**	**1.2785**

3.7 Architectural Coating - 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	6.5000e-004	4.3000e-004	4.5200e-003	2.0000e-005	1.6800e-003	1.0000e-005	1.7000e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.3630	1.3630	4.0000e-005	0.0000	1.3639
Total	**6.5000e-004**	**4.3000e-004**	**4.5200e-003**	**2.0000e-005**	**1.6800e-003**	**1.0000e-005**	**1.7000e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.3630**	**1.3630**	**4.0000e-005**	**0.0000**	**1.3639**

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	0.2119					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5000e-004	6.4000e-004	9.1600e-003	1.0000e-005		0.0000	0.0000		0.0000	0.0000	0.0000	1.2766	1.2766	8.0000e-005	0.0000	1.2785
Total	**0.2120**	**6.4000e-004**	**9.1600e-003**	**1.0000e-005**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2766**	**1.2766**	**8.0000e-005**	**0.0000**	**1.2785**

3.7 Architectural Coating - 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	6.5000e-004	4.3000e-004	4.5200e-003	2.0000e-005	1.6800e-003	1.0000e-005	1.7000e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.3630	1.3630	4.0000e-005	0.0000	1.3639
Total	**6.5000e-004**	**4.3000e-004**	**4.5200e-003**	**2.0000e-005**	**1.6800e-003**	**1.0000e-005**	**1.7000e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.3630**	**1.3630**	**4.0000e-005**	**0.0000**	**1.3639**

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	0.3603	1.4095	3.7924	0.0131	1.2111	0.0105	1.2216	0.3243	9.7300e-003	0.3340	0.0000	1,212.2790	1,212.2790	0.0635	0.0000	1,213.8658
Unmitigated	0.3603	1.4095	3.7924	0.0131	1.2111	0.0105	1.2216	0.3243	9.7300e-003	0.3340	0.0000	1,212.2790	1,212.2790	0.0635	0.0000	1,213.8658

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,182.00	1,182.00	1182.00	2,292,361	2,292,361
Condo/Townhouse	424.00	424.00	424.00	822,302	822,302
Parking Lot	0.00	0.00	0.00		
Quality Restaurant	84.00	84.00	84.00	99,638	99,638
Recreational Swimming Pool	0.00	0.00	0.00		
Total	1,690.00	1,690.00	1,690.00	3,214,302	3,214,302

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 Mid Rise	6.00	6.00	6.00	42.00	18.00	40.00	86	11	3
Condo/Townhouse	6.00	6.00	6.00	42.00	18.00	40.00	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Quality Restaurant	9.50	7.30	7.30	12.00	69.00	19.00	38	18	44
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Condo/Townhouse	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Parking Lot	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Quality Restaurant	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Recreational Swimming Pool	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Install Energy Efficient Appliances

Fox Point - San Diego 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	209.3443	209.3443	8.3300e-003	1.8500e-003	210.1041
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	248.8218	248.8218	9.9000e-003	2.2000e-003	249.7249
NaturalGas Mitigated	0.0153	0.1325	0.0688	8.3000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	151.3442	151.3442	2.9000e-003	2.7700e-003	152.2435
NaturalGas Unmitigated	0.0153	0.1325	0.0688	8.3000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	151.3442	151.3442	2.9000e-003	2.7700e-003	152.2435

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 Mid Rise	1.46346e+006	7.8900e-003	0.0674	0.0287	4.3000e-004		5.4500e-003	5.4500e-003		5.4500e-003	5.4500e-003	0.0000	78.0959	78.0959	1.5000e-003	1.4300e-003	78.5600
Condo/Townhouse	762291	4.1100e-003	0.0351	0.0150	2.2000e-004		2.8400e-003	2.8400e-003		2.8400e-003	2.8400e-003	0.0000	40.6788	40.6788	7.8000e-004	7.5000e-004	40.9205
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
Quality Restaurant	610330	3.2900e-003	0.0299	0.0251	1.8000e-004		2.2700e-003	2.2700e-003		2.2700e-003	2.2700e-003	0.0000	32.5695	32.5695	6.2000e-004	6.0000e-004	32.7631
Recreational Swimming Pool	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		**0.0153**	**0.1325**	**0.0688**	**8.3000e-004**		**0.0106**	**0.0106**		**0.0106**	**0.0106**	**0.0000**	**151.3442**	**151.3442**	**2.9000e-003**	**2.7800e-003**	**152.2436**

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 Mid Rise	1.46346e+006	7.8900e-003	0.0674	0.0287	4.3000e-004		5.4500e-003	5.4500e-003		5.4500e-003	5.4500e-003	0.0000	78.0959	78.0959	1.5000e-003	1.4300e-003	78.5600
Condo/Townhouse	762291	4.1100e-003	0.0351	0.0150	2.2000e-004		2.8400e-003	2.8400e-003		2.8400e-003	2.8400e-003	0.0000	40.6788	40.6788	7.8000e-004	7.5000e-004	40.9205
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
Quality Restaurant	610330	3.2900e-003	0.0299	0.0251	1.8000e-004		2.2700e-003	2.2700e-003		2.2700e-003	2.2700e-003	0.0000	32.5695	32.5695	6.2000e-004	6.0000e-004	32.7631
Recreational Swimming Pool	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		**0.0153**	**0.1325**	**0.0688**	**8.3000e-004**		**0.0106**	**0.0106**		**0.0106**	**0.0106**	**0.0000**	**151.3442**	**151.3442**	**2.9000e-003**	**2.7800e-003**	**152.2436**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	788971	161.9081	6.4400e-003	1.4300e-003	162.4958
Condo/Townhouse	266236	54.6355	2.1700e-003	4.8000e-004	54.8338
Parking Lot	21840	4.4819	1.8000e-004	4.0000e-005	4.4982
Quality Restaurant	135450	27.7963	1.1100e-003	2.5000e-004	27.8972
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Total		**248.8218**	**9.9000e-003**	**2.2000e-003**	**249.7249**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	673117	138.1331	5.5000e-003	1.2200e-003	138.6345
Condo/Townhouse	224773	46.1266	1.8400e-003	4.1000e-004	46.2940
Parking Lot	7644	1.5687	6.0000e-005	1.0000e-005	1.5744
Quality Restaurant	114592	23.5159	9.4000e-004	2.1000e-004	23.6012
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Total		**209.3443**	**8.3400e-003**	**1.8500e-003**	**210.1041**

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	1.2089	0.0214	1.8570	1.0000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	3.0351	3.0351	2.9200e-003	0.0000	3.1080
Unmitigated	1.2089	0.0214	1.8570	1.0000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	3.0351	3.0351	2.9200e-003	0.0000	3.1080

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	0.1589					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9941					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0559	0.0214	1.8570	1.0000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	3.0351	3.0351	2.9200e-003	0.0000	3.1080
Total	**1.2089**	**0.0214**	**1.8570**	**1.0000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**	**0.0000**	**3.0351**	**3.0351**	**2.9200e-003**	**0.0000**	**3.1080**

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	0.1589					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.9941					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0559	0.0214	1.8570	1.0000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	3.0351	3.0351	2.9200e-003	0.0000	3.1080
Total	**1.2089**	**0.0214**	**1.8570**	**1.0000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**	**0.0000**	**3.0351**	**3.0351**	**2.9200e-003**	**0.0000**	**3.1080**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	81.5878	0.8108	0.0197	107.7370
Unmitigated	134.7455	1.0148	0.0250	167.5510

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	22.7861 / 14.3652	100.8673	0.7462	0.0184	124.9937
Condo/Townhouse	6.13028 / 3.86474	27.1369	0.2008	4.9400e-003	33.6278
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	1.88598 / 0.120382	5.9123	0.0617	1.5000e-003	7.9004
Recreational Swimming Pool	0.18899 / 0.115833	0.8291	6.1900e-003	1.5000e-004	1.0291
Total		**134.7455**	**1.0148**	**0.0250**	**167.5510**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	18.2289 / 2.54966	60.3056	0.5962	0.0145	79.5328
Condo/Townhouse	4.90422 / 0.685948	16.2243	0.1604	3.9000e-003	21.3971
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	1.50879 / 0.0213665	4.5590	0.0493	1.2000e-003	6.1489
Recreational Swimming Pool	0.151192 / 0.0205591	0.4988	4.9400e-003	1.2000e-004	0.6583
Total		**81.5878**	**0.8108**	**0.0197**	**107.7371**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	13.0371	0.7705	0.0000	32.2989
Unmitigated	26.0742	1.5409	0.0000	64.5977

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	90.62	18.3950	1.0871	0.0000	45.5729
Condo/Townhouse	24.38	4.9489	0.2925	0.0000	12.2607
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	3.19	0.6475	0.0383	0.0000	1.6043
Recreational Swimming Pool	10.26	2.0827	0.1231	0.0000	5.1598
Total		**26.0742**	**1.5409**	**0.0000**	**64.5977**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	45.31	9.1975	0.5436	0.0000	22.7865
Condo/Townhouse	12.19	2.4745	0.1462	0.0000	6.1304
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	1.595	0.3238	0.0191	0.0000	0.8021
Recreational Swimming Pool	5.13	1.0413	0.0615	0.0000	2.5799
Total		**13.0371**	**0.7705**	**0.0000**	**32.2989**

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 B

NREL PV Watts 434 kW Energy Output Calculations

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

Caution: Photovoltaic system performance predictions calculated by PVWatts® include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts® inputs. For example, PV modules with better performance are not differentiated within PVWatts® from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at https://sam.nrel.gov) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

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The energy output range is based on analysis of 30 years of historical weather data for nearby , and is intended to provide an indication of the possible interannual variability in generation for a Fixed (open rack) PV system at this location.

RESULTS

688,522 kWh/Year*

System output may range from 661,808 to 692,860 kWh per year near this location.

Month	Solar Radiation (kWh / m^2 / day)	AC Energy (kWh)	Value ($)
January	4.51	45,981	7,518
February	5.21	48,506	7,931
March	6.03	61,334	10,028
April	6.81	66,078	10,804
May	6.53	66,279	10,837
June	6.54	63,874	10,443
July	6.63	64,804	10,596
August	6.74	66,161	10,817
September	6.29	59,424	9,716
October	5.40	52,981	8,662
November	4.93	48,461	7,923
December	4.30	44,640	7,299
Annual	**5.83**	**688,523**	**$ 112,574**

Location and Station Identification

Requested Location	encinitas
Weather Data Source	Lat, Lon: 33.05, -117.3 0.6 mi
Latitude	33.05° N
Longitude	117.3° W

PV System Specifications *(Residential)*

DC System Size	434 kW
Module Type	Standard
Array Type	Fixed (roof mount)
Array Tilt	20°
Array Azimuth	180°
System Losses	14.08%
Inverter Efficiency	96%
DC to AC Size Ratio	1.2

Economics

Average Retail Electricity Rate	0.164 $/kWh

Performance Metrics

Capacity Factor	18.1%

ATTACHMENT C

CalEEMod PV Solar Panels

Quail Meadows Solar

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2025
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project would install 434kw solar

Land Use - Rooftop Solar

Construction Phase -

Off-road Equipment -

Off-road Equipment - zero hours

Trips and VMT - zero

Grading -

Architectural Coating -

Vehicle Trips -

Woodstoves - o

Area Coating -

Landscape Equipment - zero

Energy Use -

Water And Wastewater -

Construction Off-road Equipment Mitigation -

Energy Mitigation - Based on PVWatts, 434 kw of solar would generate 688,522 kWh per year.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	0
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	3.00	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					
2022	0.0000	0.0000	0.0000	0.0000	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					
2022	0.0000	0.0000	0.0000	0.0000	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**

	ROG	NOx	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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
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**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

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	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	-225.0150	-225.0150	-0.0091	-0.0019	-225.7999
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**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**-225.0150**	**-225.0150**	**-0.0091**	**-0.0019**	**-225.7998**

	ROG	NOx	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**	**1,125,075, 150.00**	**1,125,075, 150.00**	**0.00**	**0.00**	**1,128,999, 300.00**

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	1/1/2022	1/1/2022	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	0.00	174	0.41

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	1	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 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					0.0000	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
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**

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**

3.2 Site Preparation - 2022

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
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
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 Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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
User Defined Industrial	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
User Defined Industrial	14.70	6.60	6.60	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
User Defined Industrial	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	-225.0150	-225.0150	-0.0091	-0.0019	-225.7999
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

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					
User Defined Industrial	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					
User Defined Industrial	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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	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			
User Defined Industrial	-688522	-225.0150	-0.0091	-0.0019	-225.7999
Total		**-225.0150**	**-0.0091**	**-0.0019**	**-225.7999**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

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	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

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	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	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			
User Defined Industrial	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			
User Defined Industrial	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			
User Defined Industrial	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			
User Defined Industrial	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

Equipment Type	Number

11.0 Vegetation

APPENDIX G PRELIMINARY GEOTECHNICAL EVALUATION

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PRELIMINARY GEOTECHNICAL EVALUATION
FOX POINT FARMS
1150 QUAIL GARDENS DRIVE
ENCINITAS, CALIFORNIA

PREPARED FOR

NOLEN COMMUNITIES, LLC
1680 NORTH COAST HIGHWAY, UNIT 51
ENCINITAS, CALIFORNIA 92024

ATTENTION: MR. SEAN KILKENNY

PREPARED BY

GEOTEK, INC.
1384 POINSETTIA AVENUE, SUITE A
VISTA, CALIFORNIA 92081

PROJECT NO. 3611-SD **NOVEMBER 27, 2019**

GEOTEK

GeoTek, Inc.
1384 Poinsettia Avenue, Suite A Vista, CA 92081-8505
(760) 599-0509 Office (760) 599-0593 Fax www.geotekusa.com

November 27, 2019
Project No. 3611-SD

Nolen Communities, LLC
1680 North Coast Highway, Unit 51
Encinitas, California 92024

Attention: Mr. Sean Kilkenny

Subject: Preliminary Geotechnical Evaluation
Fox Point Farms
1150 Quail Gardens Drive
Encinitas, California

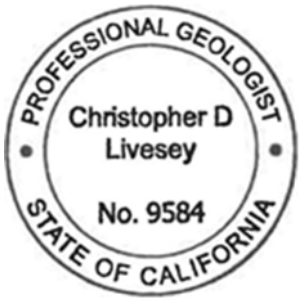
Dear Mr. Kilkenny:

We are pleased to provide the results of our geotechnical evaluation for the proposed Fox Point Farms project that will be constructed on the subject site in the city of Encinitas, California. This report presents a discussion of our evaluation and provides preliminary geotechnical recommendations for site preparation, foundation design, and construction.

Based on the results of our evaluation, development of the property appears feasible from a geotechnical viewpoint provided that the recommendations presented in this report and in future reports are incorporated into design and construction.

The opportunity to be of service is sincerely appreciated. If you have any questions, please do not hesitate to contact our office.

Respectfully submitted,
GeoTek, Inc.



Christopher Livesey
GEO 9584, Exp. 5/31/21
Project Geologist



Benjamin R. Grenis
RCE 83971, Exp. 09/30/21
Project Engineer



Edward H. LaMont
CEG 1892, Exp. 7/31/20
Principal Geologist

Distribution: (1) Addressee via email (one PDF file)

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Figure 2 – Boring Test Location Map

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1. PURPOSE AND SCOPE OF SERVICES

The purpose of this study was to evaluate the existing geotechnical conditions for the anticipated site development. Services provided for this study have included the following:

- Research and review of available geologic data and general information pertinent to the site,
- A site reconnaissance,
- Excavation and logging of six (6) additional geotechnical exploratory borings,
- Excavation of four (4) borings to perform percolation testing;
- Collection of soil samples,
- Laboratory testing of selected soil samples,
- Review and evaluation of site seismicity, and;
- Compilation of this update geotechnical report which presents our preliminary recommendations for site development.

The intent of this report is to aid in the evaluation of the site for future proposed development from a geotechnical perspective. The professional opinions and geotechnical information contained in this report may need to be updated based upon our review of the final site development plans. These plans should be provided to GeoTek, Inc. for review when available.

2. SITE DESCRIPTION AND PROPOSED DEVELOPMENT

2.1 SITE DESCRIPTION

The approximately 19-acre site is located at the northwest corner of Leucadia Boulevard and Quail Gardens Road in the City of Encinitas, California. The site is bordered by Sedonia Street and existing residences to the west, a descending slope into a canyon to the north, and Quail Gardens to the east, and Leucadia Boulevard to the south. The site is currently occupied by greenhouses, above ground storage tanks, prefabricated steel structures, a residence, pavements

and underground utilities. Additionally, there are partial subterranean structures along the west property line that appear to house pump equipment. In general, a perimeter road encompasses the northern 2/3 of the Site with two roads cut through the Site in an east-west direction. The surface of the interior Site roads consist of variations of dirt, asphalt-concrete and Portland concrete cement. The property is generally flat with minor terracing on the south quarter of the property. Existing elevation of the site is approximately at 315 msl. The approximate location of the site is indicated on the attached Figure 1, Site Location Map.

2.2 PROPOSED DEVELOPMENT

Based on a review of a *Fox Point Farms Concept Plan A* prepared by Schmidt Design Group, dated October 8, 2019, we understand that the project structure type varies from two-story bungalows to three-story multi-family residential buildings, a recreational area, and commercial space.

The structures are anticipated to utilize light-frame wood construction and shallow foundations. Maximum column and wall loads up to about 150 kips and 6 kips per foot have been estimated for the purpose of this report. Once actual structural loading information is known, that information should be provided to GeoTek to determine if modifications to the recommendations presented in this report are warranted.

3. FIELD EXPLORATION AND LABORATORY TESTING

3.1 FIELD EXPLORATION

Our field exploration was conducted on October 24, 2019 and consisted of excavating six (6) test borings which were drilled with a conventional CME-75, truck mounted, hollow-stem auger drill rig to depths ranging from about 21-½ to 26-½ feet below ground surface (bgs). A hollow-stem auger with a nominal outside diameter of 6 inches was utilized. The inside diameter of the auger was 3.25 inches. A Professional Engineer from GeoTek, Inc. logged the exploratory borings. The approximate boring locations are presented on Figure 2. Logs of the exploratory borings are included in Appendix A.

The exploration logs show subsurface conditions at the dates and locations indicated and may not be representative of other locations and times. The stratification lines presented on the logs represent the approximate boundaries between soil types and the transitions may be gradual.

Relatively undisturbed soil samples were recovered at various depths/intervals in the geotechnical borings with a California sampler. The California sampler is a 3-inch outside diameter, 2.4-inch inside diameter, split barrel sampler lined with brass rings. The sampler was 18 inches long. The sampler conformed to the requirements of ASTM D 3550. A 140-pound automatic trip hammer was utilized, dropping 30 inches for each blow. The relatively undisturbed samples, together with bulk samples of representative soil types, were returned to the laboratory for testing and evaluation. The California Ring sampler penetration data are presented on the boring logs.

3.2 PERCOLATION TESTING AND INFILTRATION ANALYSES

Borings P-1 through P-4 were advanced with the hollow stem auger to depths of approximately 5 feet below existing ground. Following completion of boring advancement, percolation testing was performed by a representative from our firm in general conformance with the City of Encinitas Engineering Design Manual, Chapter 7: BMP Design Manual. The boreholes were pre-soaked overnight and the testing was performed on the following day. Percolation testing was performed by adding potable water to the boring hole, recording the initial depth to water and allowing the water to percolate for 30 minutes and the depth to water was measured. Water was generally added to the boring excavation following each reading increment. In general, the percolation testing was performed for approximately 6 hours to allow rates to stabilize.

For design of shallow infiltration basins, converting percolation rates to infiltration rates via the Porchet method is generally acceptable and appropriate, as this method factors out the sidewall component of the percolation results and represents the bottom conditions of a shallow basin (infiltration). Therefore, the percolation data for each of the borings were converted to an infiltration rate via the Porchet method. This method is consistent with the guidelines referenced in the City of Encinitas BMP Design Manual. Results of our infiltration testing have been presented without a factor of safety.

Location	Depth (inches)	Infiltration Rate (inches per hour)*
P-1	41	0
P-2	54	0
P-3	41	0
P-4	48	0

* Rate was converted to an infiltration rate via the Porchet method

Copies of the infiltration conversion sheets are included in Appendix A.

The material exposed along the boring sidewalls and at the bottom of P-1 through P-4 was native soils. The tests performed and reported are indicative of native soils. At the time of investigation, groundwater was not observed in any of our test pits or percolation boring excavations.

Over the lifetime of the storm water disposal areas, the percolation rates may be affected by silt build up and biological activities, as well as local variations in soil conditions. An appropriate factor of safety used to compute the design percolation rate should be considered at the discretion of the design engineer and acceptance of the plan reviewer. In addition an operations and maintenance program should be implemented and followed to mitigate reduced infiltration rates.

3.3 LABORATORY TESTING

Laboratory testing was performed on selected soil samples obtained during our field exploration. The purpose of the laboratory testing was to evaluate the physical properties of the soils for use in engineering design and analysis.

Included in our laboratory testing were moisture-density determinations on undisturbed samples. Optimum moisture content-maximum dry density relationships were established for typical soil types so that the relative compaction of the subsoils could be determined. Direct shear testing was performed one remolded sample to help evaluate the bearing capacity of the soils. Expansion Index testing was performed on a selected sample to evaluate the expansion potential of the on-site soils. Chemical testing comprised of soluble sulfates was conducted on a selected sample. The moisture-density data are presented on the exploration logs in Appendix A. The maximum density, direct shear, expansion index and chemical test data are presented in Appendix B.

4. GEOLOGIC AND SOILS CONDITIONS

4.1 REGIONAL SETTING

The subject property is situated in the southern portion of the Peninsular Ranges geomorphic province. The Peninsular Ranges province is one of the largest geomorphic units in western North America. It extends approximately 975 miles south of the Transverse Ranges geomorphic province to the tip of Baja California. This province varies in width from about 30 to 100 miles.

It is bounded on the west by the Pacific Ocean, on the south by the Gulf of California and on the east by the Colorado Desert Province.

The Peninsular Ranges are essentially a series of northwest-southeast oriented fault blocks. Several major fault zones are found in this province. The Elsinore Fault zone and the San Jacinto Fault zone trend northwest-southeast and are found near the middle of the province. The San Andreas Fault zone borders the northeasterly margin of the province.

More specific to the subject property, the site is located in an area geologically mapped to be underlain by very old paralic deposits (CGS, 2007).

4.2 GENERAL SOIL/GEOLOGIC CONDITIONS

A brief description of the soils encountered on the site is presented in the following sections. Based on our field exploration and observations, the site is generally underlain by very old paralic deposits.

4.2.1 Undocumented Fill

Undocumented fill soils were not noted in our test borings but may be present under existing pavements, structures, and above ground storage tanks. Existing fill soils are not considered suitable for support of structural site improvements in their current condition. Fill materials may be re-used as engineered fill if deleterious materials are removed and the remaining soil is properly prepared and placed.

4.2.2 Very Old Paralic Deposits

Very old paralic deposits were encountered through the full depth explored. As encountered in our borings, the very old paralic deposits generally consisted of dense to very dense, fine to medium grained sands and silty sands.

4.3 SURFACE AND GROUNDWATER

4.3.1 Surface Water

Surface water was observed at two discrete locations during our site visit. Specifically, surface water was observed to be shedding from east to west along the northern interior road cutting across the site, originating from cleaning of some of the nurseries. In addition, water was observed to be flowing in a surface concrete lined culvert adjacent to the same interior road. In general, concrete drainage swales were observed to be surrounding the perimeter of the

nurseries and channeled into a sump. This is believed to be associated with the permitted recycled water system associated with the site.

Overall site area drainage is generally in a south and westerly direction, as directed by site topography. Provisions for surface drainage will need to be accounted for by the project civil engineer.

4.3.2 Groundwater

Perched groundwater was encountered in borings B-1, B-4, and B-5 at depths ranging from approximately 12 to 13 feet, however soil cuttings during drilling suggest a range of 9 feet to 14 feet in depth is locally possible. Based on the depths of groundwater encountered and anticipated construction, we do not anticipate any significant groundwater related problems during or after construction. However, the observed groundwater depths may impact storm quality infiltration basins. The City of Encinitas' Stormwater Quality Control Manual, suggests a 10 foot separation should exist between the bottom of infiltration basins and groundwater.

4.4 FAULTING AND SEISMICITY

The geologic structure of the entire southern California area is dominated mainly by northwest-trending faults associated with the San Andreas system. The site is in a seismically active region. No active or potentially active fault is presently known to exist at this site nor is the site situated within an *"Alquist-Priolo"* Earthquake Fault Zone. The nearest known active fault is the Newport-Inglewood-Rose Canyon fault Zone located about 4 miles to the southwest.

4.4.1 Seismic Design Parameters

The site is located at approximately 33.0669º Latitude and -117.2794º Longitude. Site spectral accelerations (S_a and S_1), for 0.2 and 1.0 second periods for a Class "C" site, was determined from the SEAOC/OSHPD web interface that utilizes the USGS web services and retrieves the seismic design data and presents that information in a report format. Based on the presence of shallow granitic bedrock, a Site Class C is deemed appropriate for this site. The results, based on ASCE 7-16 and the 2019 CBC, are presented in the following table.

SITE SEISMIC PARAMETERS	
Mapped 0.2 sec Period Spectral Acceleration, S_s	1.112g
Mapped 1.0 sec Period Spectral Acceleration, S_1	0.398g
Site Coefficient for Site Class "C," F_a	1.2
Site Coefficient for Site Class "C," F_v	1.5
Maximum Considered Earthquake Spectral Response Acceleration for 0.2 Second, S_{MS}	1.334g
Maximum Considered Earthquake Spectral Response Acceleration for 1.0 Second, S_{M1}	0.598g
5% Damped Design Spectral Response Acceleration Parameter at 0.2 Second, S_{DS}	0.890g
5% Damped Design Spectral Response Acceleration Parameter at 1 second, S_{D1}	0.398g
PGA_M	0.593g
Seismic Design Category	D

Final selection of the appropriate seismic design coefficients should be made by the project structural engineer based upon the local practices and ordinances, expected building response and desired level of conservatism.

4.5 LIQUEFACTION

Liquefaction describes a phenomenon in which cyclic stresses, produced by earthquake-induced ground motion, create excess pore pressures in relatively cohesionless soils. These soils may thereby acquire a high degree of mobility, which can lead to lateral movement, sliding, settlement of loose sediments, sand boils and other damaging deformations. This phenomenon occurs only below the water table, but, after liquefaction has developed, the effects can propagate upward into overlying non-saturated soil as excess pore water dissipates.

The factors known to influence liquefaction potential include soil type and grain size, relative density, groundwater level, soil plasticity, confining pressures, and both intensity and duration of ground shaking. In general, materials that are susceptible to liquefaction are loose, saturated granular soils having low fines content and some low plastic silts and clays under low confining pressures.

Due to the presence of dense very old paralic deposits, and planned engineered fill, it is our opinion that the liquefaction potential at this site is very low.

Due to the very low liquefaction potential, it is our opinion that surface manifestations and/or lateral spreading is not expected.

4.6 OTHER SEISMIC HAZARDS

Evidence of ancient landslides or slope instability at this site was not observed during our investigation and the project site is relatively flat. Thus, the potential for landslides is considered negligible for design purposes.

The potential for secondary seismic hazards such as seiche and tsunami is considered remote due to site elevation and distance from an open body of water.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 GENERAL

The anticipated site development appears feasible from a geotechnical viewpoint provided that the following recommendations, and those provided by this firm at a later date are incorporated into the design and construction phases of development. Site development and grading plans should be reviewed by GeoTek, Inc. when they become available.

The on-site soils exhibit a "low" expansion potential. Expansion index testing for near-surface soils should be conducted at the completion of earthwork operations to verify.

5.2 EARTHWORK CONSIDERATIONS

Earthwork and grading should be performed in accordance with the applicable grading ordinances of the City of Encinitas, the 2019 California Building Code (CBC) and recommendations contained in this report. The Grading Guidelines included in Appendix C outline general procedures and do not anticipate all site-specific situations. In the event of conflict, the recommendations presented in the text of this report should supersede those contained in Appendix C.

5.2.1 Demolition & Site Clearing

In areas of planned grading and improvements, all existing buildings and improvement should be removed. Demolition should include removal of all foundations, floor slabs, utilities and any other

below-grade construction. Existing asphalt and concrete pavements should also be removed or if crushed to maximum 3-inch particle size could be potentially incorporated into the engineered fill soils to be placed at the site. The site should also be cleared of vegetation and other deleterious materials. Debris should be properly disposed of off-site. Voids resulting from site clearing should be replaced with engineered fill following proper preparation as described in the following report sections.

5.2.2 Remedial Grading

After site clearing/demolition and lowering of site grades, where necessary, all existing undocumented fill (if encountered) should be removed beneath all areas to receive surface improvements and/or new fill. Removals depths of at least 3 to 5 feet below existing grade and 2 feet below the base of proposed footings should be anticipated. The lateral extent of the recommended over-excavation should extend at least 5 feet beyond the improvement limits, where possible, or down and away at a 1:1 projection until a suitable removal bottom is exposed.

All disturbed, loose or soft native soil should also be removed to expose competent natural soil or competent formational soil. Competent natural soil is defined as native soils that possess a minimum relative compaction of 85% and does not exhibit significant porosity. However, the precise depth of over-excavation should be determined by a GeoTek representative at the time of site grading.

5.2.3 Transition Pads

The cut portion of building pads that will transition from cut to fill sections should have the cut portion over-excavated to a depth of at least 3 feet or 2 feet below the bottom of building foundation footings, whichever is more great and be backfilled with a properly compacted engineered fill. The purpose of this recommendation is to provide a relatively uniform mat for foundation support and to minimize sharp transitions from cut to fill soils beneath foundations and floor slabs. A deeper over-excavation depth may be necessary based on exposed conditions, and proposed improvements.

5.2.4 Preparation of Excavation Bottoms

A representative of this firm should observe the bottom of all excavations. Upon approval, the exposed soils and all soils in areas to receive engineered fill should be scarified to a depth of approximately 6 inches, moistened to at least the optimum moisture content and compacted to a minimum relative compaction of 90 percent (ASTM D 1557).

5.2.5 Engineered Fills

The on-site soils are generally considered suitable for reuse as engineered fill provided that they are free from vegetation, debris, oversized materials and other deleterious material. Engineered

fill should be placed in loose lifts with a thickness of eight inches or less, moisture conditioned to at least the optimum moisture content and compacted to a minimum relative compaction of 90 percent (ASTM D 1557).

5.2.6 Excavation Characteristics

Excavation in the on-site very old paralic deposits is expected to be feasible utilizing heavy-duty grading equipment in good operating condition. However, excavations that may extend into the underlying bedrock is expected to encounter more resistant materials. Dependent upon the depth of the excavations and the hardness of potential bedrock encountered, specialized excavation techniques and/or equipment may be required. All temporary excavations for grading purposes and installation of underground utilities should be constructed in accordance with local and Cal-OSHA guidelines. Temporary excavations within the on-site materials should be stable at 1:1 (horizontal: vertical) inclinations for cuts less than ten feet in height.

5.2.7 Shrinkage and Subsidence

Several factors will impact earthwork balancing on the site, including shrinkage, subsidence, trench spoil from utilities and footing excavations, as well as the accuracy of topography.

Shrinkage and subsidence are primarily dependent upon the degree of compactive effort achieved during construction. For planning purposes, a shrinkage/bulking factor of about ± 5 percent may be considered for undocumented fill materials requiring removal and recompaction. A bulking factor of about 0 to 10 percent may be considered for excavation and recompaction of the very old paralic deposits. Site balance areas should be available in order to adjust project grades, depending on actual field conditions at the conclusion of earthwork. Subsidence is not anticipated to be a factor with the underlying very old paralic deposits.

5.3 DESIGN RECOMMENDATIONS

5.3.1 Foundation Design Criteria

Foundation design criteria for a conventional foundation system, in general conformance with the 2019 CBC, are presented below. Based on laboratory test results, subsequent to earthwork operations it is anticipated that the as-graded near-surface soils may have a "low" expansion potential.

Additional expansion index and soluble sulfate testing of the soils should be performed during construction to evaluate the as-graded conditions. Final recommendations should be based upon the as-graded soils conditions.

A summary of our foundation design recommendations is presented in the following table:

Design Parameter	"Low" Expansion Potential
Foundation Depth or Minimum Perimeter Beam Depth (inches below lowest adjacent grade)	18 inches for 1-3 stories
Minimum Foundation Width (Inches)*	12 inches for 1 story wall footings 15 inches for 2 story wall footings 18 inches for 3 story wall footings 24 inches for 1 story column footings 30 inches for 2 story column footings 36 inches for 3 story column footings
Minimum Slab Thickness (actual)[1]	4 – Actual
Sand Blanket and Moisture Retardant Membrane Below On-Grade Building Slabs	2 inches of sand** overlying 10 millimeter thick moisture vapor retardant membrane overlying 2 inches of sand**
Minimum Slab Reinforcing	6" x 6" – W2.9/W2.9 welded wire fabric placed in middle of slab or No. 3 bars at 18 inch centers.
Minimum Footing Reinforcement	Two No. 5 reinforcing bars, one placed near the top and one near the bottom
Effective Plasticity Index***	15
Presaturation of Subgrade Soil (Percent of Optimum)	Minimum of 110% of the optimum moisture content to a depth of at least 12 inches prior to placing concrete

* Code minimums per Table 1809.7 of the 2019 CBC.
** Sand should have a sand equivalent of at least 30.
*** Effective plasticity index should be verified at the completion of rough grading.
1. Slab thickness and reinforcement should be determined necessary by the structural engineer.

It should be noted that the criteria provided are based on soil support characteristics only. The structural engineer should design the slab and beam reinforcement based on actual loading conditions.

The following criteria for design of foundations are preliminary and should be re-evaluated based on the results of additional laboratory testing of samples obtained near finish pad grade.

An allowable bearing capacity of 3,000 pounds per square foot (psf) may be used for design of footings 12 inches deep and 12 inches wide. This value may be increased by 750 pounds per square foot for each additional 12 inches in depth and 350 pounds per square foot for each additional 12 inches in width to a maximum value of 4,500 psf. Footing directly supported by

very old paralic deposits may be designed for an allowable soil bearing pressure of 4,000 psf with the above noted increases for depth and width. An increase of one-third may be applied when considering short-term live loads (e.g. seismic and wind loads).

Structural foundations may be designed in accordance with the 2019 CBC, and to withstand a total static settlement of 1 inch and maximum differential static settlement of one-half of the total settlement over a horizontal distance of 40 feet.

The passive earth pressure may be computed as an equivalent fluid having a density of 250 psf per foot of depth, to a maximum earth pressure of 2,500 psf for footings founded on engineered fill. A coefficient of friction between soil and concrete of 0.35 may be used with dead load forces. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one-third.

If desired, the building floor slabs may be designed using an estimated subgrade modulus of 175 pci, which is based on a value typically obtained from a 1 foot by 1 foot plate bearing test. Depending on how the floor slab is loaded, the subgrade modulus may need to be geometrically modified.

5.3.2 Underslab Moisture Membrane

A moisture and vapor retarding system should be placed below slabs-on-grade where moisture migration through the slab is undesirable. Guidelines for these are provided in the 2019 California Green Building Standards Code (CALGreen) Section 4.505.2, the 2019 CBC Section 1907.1 and ACI 360R-10. The vapor retarder design and construction should also meet the requirements of ASTM E 1643. A portion of the vapor retarder design should be the implementation of a moisture vapor retardant membrane.

It should be realized that the effectiveness of the vapor retarding membrane can be adversely impacted as a result of construction related punctures (e.g. stake penetrations, tears, punctures from walking on the vapor retarder placed on the underlying aggregate layer, etc.). These occurrences should be limited as much as possible during construction. Thicker membranes are generally more resistant to accidental puncture than thinner ones. Products specifically designed for use as moisture/vapor retarders may also be more puncture resistant. Although the CBC specifies a 6-mil vapor retarder membrane, a minimum 10 mil thick membrane with joints properly overlapped and sealed should be considered, unless otherwise specified by the slab design professional. The membrane should consist of Stego wrap or the equivalent.

A two-inch layer of clean sand with a sand equivalent of at least 30 should be placed over the moisture vapor retardant membrane to promote setting of the concrete. The moisture in the sand should not exceed two percent below the optimum moisture content.

Moisture and vapor retarding systems are intended to provide a certain level of resistance to vapor and moisture transmission through the concrete, but do not eliminate it. The acceptable level of moisture transmission through the slab is to a large extent based on the type of flooring used and environmental conditions. Ultimately, the vapor retarding system should be comprised of suitable elements to limit migration of water and reduce transmission of water vapor through the slab to acceptable levels. The selected elements should have suitable properties (i.e. thickness, composition, strength, and permeability) to achieve the desired performance level.

Moisture retarders can reduce, but not eliminate, moisture vapor rise from the underlying soils up through the slab. Moisture retarder systems should be designed and constructed in accordance with applicable American Concrete Institute, Portland Cement Association, Post-Tensioning Concrete Institute, ASTM and California Building Code requirements and guidelines.

GeoTek recommends that a qualified person, such as a flooring contractor, structural engineer, architect, and/or other experts specializing in moisture control within the buildings be consulted to evaluate the general and specific moisture and vapor transmission paths and associated potential impact on the proposed construction. That person should provide recommendations relative to the slab moisture and vapor retarder systems and for migration of potential adverse impact of moisture vapor transmission on various components of the structures, as deemed appropriate.

In addition, the recommendations in this report and our services in general are not intended to address mold prevention, since we, along with geotechnical consultants in general, do not practice in the area of mold prevention. If specific recommendations addressing potential mold issues are desired, then a professional mold prevention consultant should be contacted.

5.3.3 Miscellaneous Foundation Recommendations

To minimize moisture penetration beneath the slab-on-grade areas, utility trenches should be backfilled with engineered fill, lean concrete or concrete slurry where they intercept the perimeter footing or thickened slab edge.

Soils from the footing excavations should not be placed in the slab-on-grade areas unless properly compacted and tested. The excavations should be free of loose/sloughed materials and be neatly trimmed at the time of concrete placement.

We recommend that control joints be placed in two directions spaced approximately 24 to 36 times the thickness of the slab in inches. These joints are a widely accepted means to control cracks and should be reviewed by the project structural engineer.

5.3.4 Foundation Set Backs

Minimum setbacks for all foundations should comply with the 2019 CBC or City of Encinitas requirements, whichever is more stringent. Improvements not conforming to these setbacks are subject to the increased likelihood of excessive lateral movement and/or differential settlement. If large enough, these movements can compromise the integrity of the improvements.

- The outside top edge of all footings should be set back a minimum of H/3 (where H is the slope height) from the face of any descending slope. The setback should be at least five feet and need not exceed 40 feet.

- The bottom of any proposed foundations should be deepened so as to extend below a 1:1 upward projection from the bottom edge of the nearest excavation and the bottom edge of the closest footing.

5.4 RETAINING WALL DESIGN AND CONSTRUCTION

5.4.1 General Design Criteria

Recommendations presented in this report apply to typical masonry or concrete vertical retaining walls. These are typical design criteria and are not intended to supersede the design by the structural engineer.

Retaining wall foundations should be designed in accordance with *Section 5.3.1* of this report. A minimum foundation embedment of 18 inches into engineered compacted fill or competent native soils is recommended. Structural needs may govern and should be evaluated by the project structural engineer.

All earth retention structure plans, as applicable, should be reviewed by this office prior to finalization.

The backfill material placement for all earth retention structures should meet the requirement of *Section 5.4.4* in this report.

In general, cantilever earth retention structures, which are designed to yield at least 0.001H, where H is equal to the height of the wall to the base of the footing, may be designed using the active condition. Rigid earth retention structures (including but not limited to rigid walls, and walls braced at top, such as typical basement walls) should be designed using the at-rest condition as discussed in Section 4.4.3.

In addition to the design lateral forces due to retained earth, surcharges due to improvements, such as an adjacent building or traffic loading, should be considered in the design of the earth retention structures. Loads applied within a 1:1 (h:v) projection from the surcharge on the stem of the earth retention structure should be considered in the design.

For walls with a retained height greater than 6 feet, a seismic surcharge pressure should also be considered in wall design. Based on the Mononobe-Okabe method, it is our opinion that an equivalent fluid pressure of 15 pcf should be added, where required, to account for earthquake loading conditions. The earthquake load can be represented as a conventional triangular pressure distribution.

Final selection of the appropriate design parameters should be made by the designer of the earth retention structures.

5.4.2 Cantilevered Walls

The recommendations presented below are for cantilevered retaining walls. Active earth pressure may be used for retaining wall design, provided the top of the wall is not restrained from minor deflections. An equivalent fluid pressure approach may be used to compute the horizontal pressure against the wall. Appropriate fluid unit weights are given below for specific slope gradients of the retained material. These do not include other superimposed loading conditions such as traffic, structures, seismic events, or adverse geologic conditions.

ACTIVE EARTH PRESSURES	
Surface Slope of Retained Materials (h:v)	Equivalent Fluid Pressure (pcf)*
Level	35
2:1	60

* The design pressures assume the backfill material has an expansion index less than or equal to 20. Backfill zone includes area between the back of the wall and footing to a plane (1:1 h:v) up from the bottom of the wall foundation to the ground surface.

5.4.3 Restrained Retaining Walls

Retaining walls that will be restrained prior to placing and compacting backfill material, or that have reentrant or male corners, should be designed for an at-rest equivalent fluid pressure of 60 pcf, plus any applicable surcharge loading, for very low expansive backfill (EI<20) and level back slope condition. For areas of male or reentrant corners, the restrained wall design should extend a minimum distance of twice the height of the wall laterally from the corner, or a distance otherwise determined by the project structural engineer.

5.4.4 Retaining Wall Backfill and Drainage

Retaining wall backfill should consist of materials with expansion index (EI) ≤ 20 and free of deleterious and/or oversized materials. The wall backfill should also include a minimum one-foot wide section of ¾- to 1-inch clean crushed rock (or approved equivalent). The rock should be placed immediately adjacent to the back of wall and extend up from the back drain to within approximately 12 inches of finish grade. The upper 12 inches should consist of compacted onsite materials. Presence of other materials might necessitate revision to the parameters provided and modification of wall designs. The backfill materials should be placed in lifts no greater than 8-inches in thickness and compacted to a minimum of 90 percent relative compaction in accordance with ASTM Test Method D 1557. Proper surface drainage needs to be provided and maintained. Bracing of the walls during backfilling and compaction may also be necessary.

All earth retention structures should be provided with an adequate pipe and gravel back drain system to reduce the potential for hydrostatic pressure build up. As a minimum, backdrains should consist of a four-inch diameter perforated collector pipe (Schedule 40, SDR 35, or approved equivalent) embedded in a minimum of one cubic foot per lineal foot of ¾- to 1-inch clean crushed rock or equivalent, wrapped in filter fabric (Mirafi 140N or approved equivalent). The drain system should be connected to a suitable outlet, as determined by the civil engineer. Drain outlets should be maintained over the life of the project and should not be obstructed or plugged by adjacent improvements. Waterproofing of site walls should be performed where moisture migration through the wall is undesirable.

Proper surface drainage needs to be provided and maintained. Water should not be allowed to pond behind retaining walls. Waterproofing of site walls should be performed where moisture migration through the wall is undesirable.

5.5.1 Soil Sulfate Content

The results of chemical testing performed on representative samples of the site soils indicate soluble sulfate contents less than 0.1 percent by weight. Soluble sulfate contents of this level

would be in the range of sulfate exposure class "S0" per Table 19.3.1.1 of ACI 318. Based on the test results and Table 19.3.2.1 of ACI 318, special concrete mix design is not anticipated to be necessary to resist sulfate attack. Additional soluble sulfate testing should be performed during site grading to further evaluate the as-grade sulfate exposure.

5.5.2 Import Soils

Import soils should have a "very low" to "low' expansion potential. GeoTek, Inc. also recommends that the proposed import soils be tested for expansion and corrosivity potential. GeoTek, Inc. should be notified a minimum of 72 hours prior to importing so that appropriate sampling and laboratory testing can be performed.

5.5.3 Preliminary Pavement Design and Construction

Based on laboratory testing, preliminary pavement sections have been designed using an as-tested R-value of 16. Traffic Indices (TIs) of 5.0 and 6.0 were utilized, and depending on final guidance from a traffic engineer, may require revision of the following recommendations:

For a Traffic Index of 5.0:

4-inches asphalt-concrete over
5.5-inches of aggregate base over
12-inches compacted subgrade to 95% per ASTM D 1557

For a Traffic Index of 6.0:

4-inches asphalt-concrete over
9.5-inches of aggregate base over
12-inches compacted subgrade to 95% per ASTM D 1557

The provided pavement sections are intended as a minimum guideline and final selection of pavement cross section parameters should be made by the project civil engineer, based upon the local laws and ordinates, expected subgrade and pavement response, and desired level of conservatism. If thinner or highly variable pavement sections are constructed, increased maintenance and repair could be expected. Irrigation adjacent to pavements, without a deep curb or other cutoff to separate landscaping from the paving will result in premature pavement failure. Final pavement design should be checked by testing of soils exposed at subgrade (the upper 12 inches) after final grading has been completed.

Asphalt concrete and aggregate base should conform to current Caltrans Standard Specifications Section 39 and 26-1.02, respectively. As an alternative, asphalt concrete can conform to Section

203-6 of the current Standard Specifications for Public Work (Green Book). Crushed aggregate base or crushed miscellaneous base can conform to Section 200-2.2 and 200-2.4 of the Green Book, respectively. Pavement base should be compacted to at least 95 percent of the ASTM D 1557 laboratory maximum dry density (modified proctor).

All pavement installation, including preparation and compaction of subgrade, compaction of base material, placement and rolling of asphaltic concrete, should be done in accordance with the City of Encinitas specifications, and under the observation and testing of GeoTek and a City inspector, if necessary.Jurisdictional minimum compaction requirements in excess of the aforementioned minimums may govern.

5.5.4 Concrete Flatwork

5.5.4.1 Exterior Concrete Slabs, Sidewalks and Driveways

Exterior concrete slabs, sidewalks and driveways should be designed using a four-inch minimum thickness. Some shrinkage and cracking of the concrete should be anticipated as a result of typical mix designs and curing practices typically utilized in construction.

Sidewalks and driveways may be under the jurisdiction of the governing agency. If so, jurisdictional design and construction criteria would apply, if more restrictive than the recommendations presented in this report.

Subgrade soils should be pre-moistened prior to placing concrete. The subgrade soils below exterior slabs, sidewalks, driveways, etc. should be pre-saturated to a minimum of 110 percent (for "low" expansivity) of the optimum moisture content to a depth of 12 inches.

All concrete installation, including preparation and compaction of subgrade, should be done in accordance with the City of Encinitas specifications, and under the observation and testing of GeoTek, Inc. and a City inspector, if necessary.

5.5.4.2 Concrete Performance

Concrete cracks should be expected. These cracks can vary from sizes that are essentially unnoticeable to more than 1/8 inch in width. Most cracks in concrete, while unsightly, do not significantly impact long-term performance. While it is possible to take measures (proper concrete mix, placement, curing, control joints, etc.) to reduce the extent and size of cracks that occur, some cracking will occur despite the best efforts to minimize it. Concrete undergoes chemical processes that are dependent on a wide range of variables, which are difficult, at best, to control. Concrete, while seemingly a stable material, is subject to internal expansion and contraction due to external changes over time.

One of the simplest means to control cracking is to provide weakened control joints for cracking to occur along. These do not prevent cracks from developing; they simply provide a relief point for the stresses that develop. These joints are a widely accepted means to control cracks but are not always effective. Control joints are more effective the more closely spaced they are. GeoTek, Inc. suggests that control joints be placed in two directions and located a distance apart approximately equal to 24 to 36 times the slab thickness.

5.6 POST CONSTRUCTION CONSIDERATIONS

5.6.1 Landscape Maintenance and Planting

Water has been shown to weaken the inherent strength of soil, and slope stability is significantly reduced by overly wet conditions. Positive surface drainage away from graded slopes should be maintained and only the amount of irrigation necessary to sustain plant life should be provided for planted slopes. Controlling surface drainage and runoff and maintaining a suitable vegetation cover can minimize erosion. Plants selected for landscaping should be lightweight, deep-rooted types that require little water and are capable of surviving the prevailing climate.

Overwatering should be avoided. An abatement program to control ground-burrowing rodents should be implemented and maintained. Burrowing rodents can decrease the long-term performance of slopes.

It is common for planting to be placed adjacent to structures in planter or lawn areas. This will result in the introduction of water into the ground adjacent to the foundations. This type of landscaping should be avoided.

5.6.2 Drainage

Positive site drainage should be maintained at all times. Drainage should not flow uncontrolled down any descending slope. Water should be directed away from foundations and not allowed to pond or seep into the ground adjacent to the footings and floor-slabs. Pad drainage should be directed toward approved areas and not be blocked by other improvements.

Roof gutters should be installed that will direct the collected water at least 20 feet from the buildings.

5.7 PLAN REVIEW AND CONSTRUCTION OBSERVATIONS

We recommend that specifications and foundation plans be reviewed by this office prior to construction to check for conformance with the recommendations of this report. We also

recommend that GeoTek, Inc. representatives be present during site grading and foundation construction to observe and document proper implementation of the geotechnical recommendations. The owner/developer should verify that GeoTek, Inc. representatives perform at least the following duties:

- Observe site clearing and grubbing operations for proper removal of unsuitable materials.
- Observe and test bottom of removals prior to fill placement.
- Evaluate the suitability of on-site and import materials for fill placement and collect soil samples for laboratory testing where necessary.
- Observe the fill for uniformity during placement, including utility trench backfill. Also, perform field density testing of the fill materials.
- Observe and probe foundation excavations to confirm suitability of bearing materials with respect to density.

If requested, a construction observation and compaction report can be provided by GeoTek, Inc. which can comply with the requirements of the governmental agencies having jurisdiction over the project. We recommend that these agencies be notified prior to commencement of construction so that necessary grading permits can be obtained.

6. INTENT

It is the intent of this report to aid in the design and construction of the proposed development. Implementation of the advice presented in this report is intended to reduce risk associated with construction projects. The professional opinions and geotechnical advice contained in this report are not intended to imply total performance of the project or guarantee that unusual or variable conditions will not be discovered during or after construction.

The scope of our evaluation is limited to the boundaries of the subject property. This review does not and should in no way be construed to encompass any areas beyond the specific area of the proposed construction as indicated to us by the client. Further, no evaluation of any existing site improvements is included. The scope is based on our understanding of the project and geotechnical engineering standards normally used on similar projects in this locality.

7. LIMITATIONS

Our findings are based on site conditions observed and the stated sources. Thus, our comments are professional opinions that are limited to the extent of the available data.

GeoTek has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering and science professions currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report.

Since our recommendations are based on the site conditions observed and encountered, and laboratory testing, our conclusions and recommendations are professional opinions that are limited to the extent of the available data. Observations during construction are important to allow for any change in recommendations found to be warranted. These opinions have been derived in accordance with current standards of practice and no warranty of any kind is expressed or implied. Standards of care/practice are subject to change with time.

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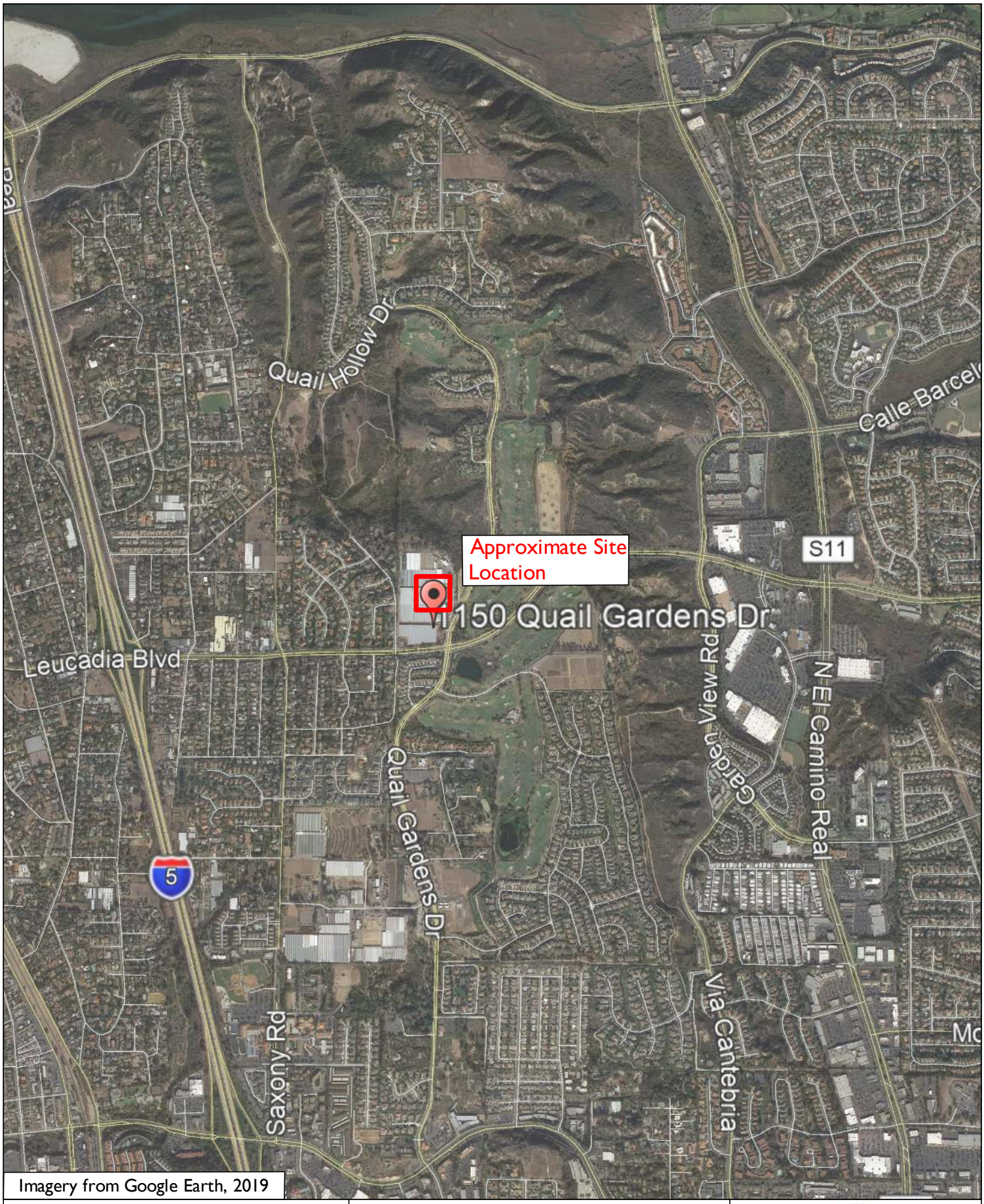
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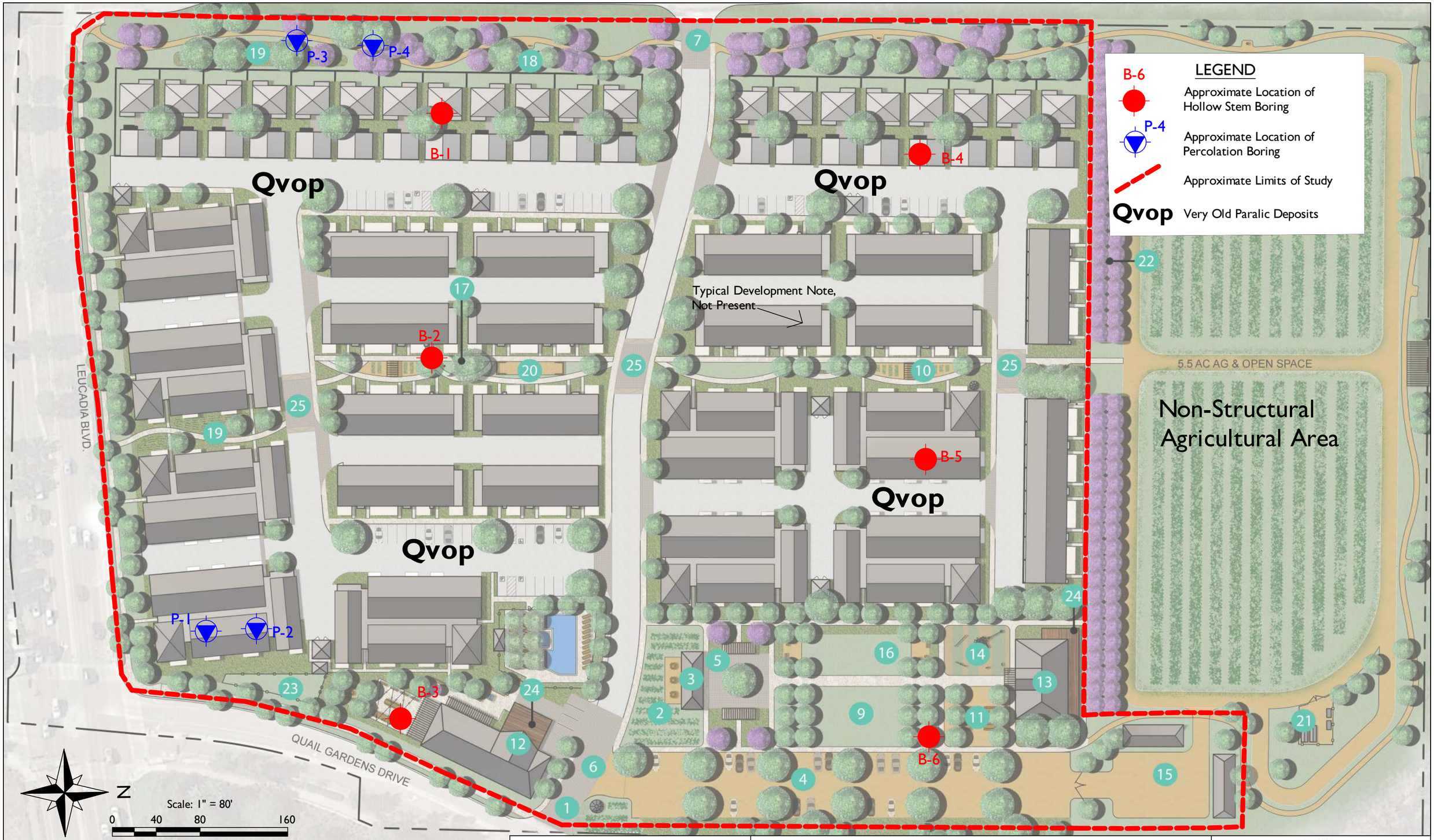
Imagery from Google Earth, 2019

Nolen Communities, LLC
Fox Point Farms
1150 Quail Gardens Drive
Encinitas, California

PN: 3611-SD | DATE: December 2019

Figure 1
Site Location Map

GEOTEK
1384 Poinsettia Avenue, Suite A
Vista, California 92081



Plan adapted from "Landscape Plan" by Schmidt Design Group

Nolen Communities, LLC.
Fox Point Farms
1150 Quail Gardens Drive
Encinitas, California

PN: 3611-SD | DATE: December 2019

Figure 2

Boring Test Location Map

GEOTEK
1384 Poinsettia Avenue, Suite A
Vista, California 92081

APPENDIX A

LOGS OF GEOTEK EXPLORATORY BORINGS AND INFILTRATION WORKSHEETS

Fox Point Farms

Encinitas, California

Project No. 3611-SD

GEOTEK

A - FIELD TESTING AND SAMPLING PROCEDURES

The Modified Split-Barrel Sampler (Ring)

The Ring sampler is driven into the ground in accordance with ASTM Test Method D 3550. The sampler, with an external diameter of 3.0 inches, is lined with 1-inch long, thin brass rings with inside diameters of approximately 2.4 inches. The sampler is typically driven into the ground 12 or 18 inches with a 140-pound hammer free falling from a height of 30 inches. Blow counts are recorded for every 6 inches of penetration as indicated on the log of boring. The samples are removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

Bulk Samples (Large)

These samples are normally large bags of earth materials over 20 pounds in weight collected from the field by means of hand digging or exploratory cuttings.

Bulk Samples (Small)

These are plastic bag samples which are normally airtight and contain less than 5 pounds in weight of earth materials collected from the field by means of hand digging or exploratory cuttings. These samples are primarily used for determining natural moisture content and classification indices.

B – BORING/TRENCH LOG LEGEND

The following abbreviations and symbols often appear in the classification and description of soil and rock on the logs of borings/trenches:

SOILS

USCS	Unified Soil Classification System
f-c	Fine to coarse
f-m	Fine to medium

GEOLOGIC

B: Attitudes	Bedding: strike/dip
J: Attitudes	Joint: strike/dip
C: Contact line	
……..	Dashed line denotes USCS material change
———	Solid Line denotes unit / formational change
———	Thick solid line denotes end of boring/trench

(Additional denotations and symbols are provided on the log of borings/trenches)

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Nolen Communities, LLC	**DRILLER:**	Baja Exploration	**LOGGED BY:**	BRG
PROJECT NAME:	Fox Point Farms	**DRILL METHOD:**	6" OD, 3.25" ID	**OPERATOR:**	T/Pedro
PROJECT NO.:	3611-SD	**HAMMER:**	140lbs/30in	**RIG TYPE:**	Truck Mount CME 75
LOCATION:	See Boring Location Map	**ELEVATION:**	310 msl	**DATE:**	10/24/2019

BORING NO.: B-1

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Quaternary Very Old Paralic Deposits Sand, light reddish brown, slightly moist, friable concretion bleas returned, hand auger			
5		19 44 50	R-1	SM	Fine to medium silty sand, light red brown, moist, very dense Sand becomes medium to coarse	13.2	113.0	
10		16 17 20	SPT-1	SP	Very fine to fine sand, light grey with iron staining, moist, very dense, black decomposed organic bits present			
15		12 25 35	SPT-2	SP/SM	Increased silt content, light reddish brown, very moist (~ 8" thick) near top of sample, no organics			
20		14 26 34	SPT-3	SM	Silty fine sand, light grey and light red brown with iron staining, very dense, poorly laminated, thin (1mm), horizontal, out of sample wet, very dense			
25					**HOLE TERMINIATED AT 21.5 FEET** Backilled with cuttings Boring left open for about 5 hours: Groundwater at 12 to 13 feet			
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; CO = Consolidation test; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Nolen Communities, LLC	**DRILLER:**	Baja Exploration	**LOGGED BY:**	BRG
PROJECT NAME:	Fox Point Farms	**DRILL METHOD:**	6" OD, 3.25" ID	**OPERATOR:**	T/Pedro
PROJECT NO.:	3611-SD	**HAMMER:**	140lbs/30in	**RIG TYPE:**	Truck Mount CME 75
LOCATION:	See Boring Location Map	**ELEVATION:**	312 msl	**DATE:**	10/24/2019

BORING NO.: B-2

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
			LB-1	SP	**Quaternary Very Old Paralic Deposits** Slightly silty sand, light brown, slightly moist, hand anger difficult to advance @ +/- 1' - sandstone?			MD, RV, EI, SR, SH
5		15 21 29	SPT-1	SM	Medium silty sand, light red brown & light olive grey, moist, dense			
10		28 45 50/3"	R-1	SP	Slightly silty sand, reddish brown, moist, very dense, scattered medium to coarse sands in otherwise fine to medium grained sand	12.6	112.5	Rod height 3-4'
					Rig chatter			
15		18 18 27	SPT-2	SM	Silty sand, light grey and reddish brown with iron staining, moist, dense, similar to B-1 sample, more silty			
20		9 14 29	SPT-3		Silty sand, light grey and reddish brown with iron staining, moist, dense, similar to B-1 sample, more silty, thumbnail indents sample with moderate pressure			
25					**HOLE TERMINIATED AT 21.5 FEET** Backilled with cuttings No groundwater encountered			
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; CO = Consolidation test; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Nolen Communities, LLC	**DRILLER:**	Baja Exploration	**LOGGED BY:**	BRG
PROJECT NAME:	Fox Point Farms	**DRILL METHOD:**	6" OD, 3.25" ID	**OPERATOR:**	T/Pedro
PROJECT NO.:	3611-SD	**HAMMER:**	140lbs/30in	**RIG TYPE:**	Truck Mount CME 75
LOCATION:	See Boring Location Map	**ELEVATION:**	318 msl	**DATE:**	10/24/2019

BORING NO.: B-3

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Quaternary Very Old Paralic Deposits Slightly silty sand, dark brown and reddish brown, moist, hand auger			
5		4 6 11	R-1	SM	Silty sand, reddish brown, moist, medium dense. Bit may have contact…light reddish brown and grey sandstone, trace silt	12.1	122.5	Rod height 3-4'
					Cutting returned slightly silty fine sand, moist, concretion blends are not friable			
10		21 32 38	SPT-1	SW	Fine to medium slightly silty sand, reddish brown, moist to very moist, very dense			
15		11 23 28	SPT-2	SM	Very dense silty sand, light grey and light red brown with iron staining, moist, same as material in B-2			
20		8 12 18	SPT-3		Silty sand, light grey and light red brown with iron staining, moist, very dense, increased silt content, *if silt then hard based on thumbnail indentation			
					HOLE TERMINIATED AT 21.5 FEET Backilled with cuttings No groundwater encountered			
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; CO = Consolidation test; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Nolen Communities, LLC	**DRILLER:**	Baja Exploration	**LOGGED BY:**	BRG
PROJECT NAME:	Fox Point Farms	**DRILL METHOD:**	6" OD, 3.25" ID	**OPERATOR:**	T/Pedro
PROJECT NO.:	3611-SD	**HAMMER:**	140lbs/30in	**RIG TYPE:**	Truck Mount CME 75
LOCATION:	See Boring Location Map	**ELEVATION:**	307 msl	**DATE:**	10/24/2019

BORING NO.: B-4

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					3" AC/Subgrade			
					Quaternary Very Old Paralic Deposits			MD, RV, EI, SR, SH
					Fine sand, light brown, moist, hand auger difficult			
5		13 26 42	R-1	SP	Fine to medium sand, light olive grey, moist, very dense, cemented and moderately to slightly friable	11.0	132.0	
10		10 10 17	SPT-1	SM	Silty sand, light olive grey, fine to medium grained, very moist, medium dense			
15		14 25 35	SPT-2	SP	Medium sand, light grey with iron stained blends, very moist, very dense			
					Cuttings returned suggest perched groundwater			
20		13 40 50/4"	SPT-3		Very fine to fine sand, mottle light red brown, white and tan, moist, very dense, scattered decomposed orange blends, hoizontal 1mm to 10mm			
					HOLE TERMINIATED AT 21.5 FEET			
					Backilled with cuttings Perched groundwater at 9 feet 4 inches			
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; CO = Consolidation test; MD = Maximum Density

GeoTek, Inc.
LOG OF EXPLORATORY BORING

CLIENT:	Nolen Communities, LLC	**DRILLER:**	Baja Exploration	**LOGGED BY:**	BRG
PROJECT NAME:	Fox Point Farms	**DRILL METHOD:**	6" OD, 3.25" ID	**OPERATOR:**	T/Pedro
PROJECT NO.:	3611-SD	**HAMMER:**	140lbs/30in	**RIG TYPE:**	Truck Mount CME 75
LOCATION:	See Boring Location Map	**ELEVATION:**	313 msl	**DATE:**	10/24/2019

BORING NO.: B-5

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					3" AC/Subgrade, dark brown, slightly moist			
					Quaternary Very Old Paralic Deposits			
					Cuttings returned, light brown sand			
5		13 27 27	SPT-1	SM	Medium silty sand, light brown with light red brwon and caliche blends, moist, very dense			
10		23 41 50/3"	R-1	SP	Fine to medium with scatter coarse sand, light olive grey and light yellow brown, moist, very dense, 1/4 to 1/2 inch grains in top of sample	7.9	129.3	
					Cuttings suggest perched groundwater			
15		13 23 37	SPT-2	SP	Fine to medium sand, light olive brown and light grey, moist, very dense, horizontal lams, approx 1mm thick			
20		12 25 43	SPT-3		Very fine sand or silt, light olive brown with light red brwon/rust colored inclusions, very dense/very hard, slightly moist			Rod height 7-8'
					HOLE TERMINIATED AT 21.5 FEET			
					Backilled with cuttings Groundwater at 13 feet 5 inches			
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing:

AL = Atterberg Limits	EI = Expansion Index	SA = Sieve Analysis	RV = R-Value Test
SR = Sulfate/Resisitivity Test	SH = Shear Test	CO = Consolidation test	MD = Maximum Density

GeoTek, Inc.
LOG OF EXPLORATORY BORING

CLIENT:	Nolen Communities, LLC	**DRILLER:**	Baja Exploration	**LOGGED BY:**	BRG
PROJECT NAME:	Fox Point Farms	**DRILL METHOD:**	6" OD, 3.25" ID	**OPERATOR:**	T/Pedro
PROJECT NO.:	3611-SD	**HAMMER:**	140lbs/30in	**RIG TYPE:**	Truck Mount CME 75
LOCATION:	See Boring Location Map	**ELEVATION:**	320 msl	**DATE:**	10/24/2019

BORING NO.: B-6

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					5" AC/Subgrade			
				SP	**Quaternary Very Old Paralic Deposits**			
					Slightly silty fine sand, light brown, slightly moist, cuttings return			
5		30 50/6"	R-1	SP	Fine to medium sand, light olive brown and light red brown, slightly moist, very dense, pinhole porosity and decomposed rootlets, some gravel returned	13.4	100.5	
					Cuttings suggest perched groundwater			
10		15 26 38	SPT-1	SM	Silty sand, light brown, light red brown and tan, moist, very dense, gypsum flecks rounded			
					Rig chatter and ground vibrations @ 12' of auger in the ground, stopped by 14'			
15		10 19 29	SPT-2	SP	Very fine to fine sand, light grey with rust colored intrusions, slightly moist, dense, can be somewhat polished			
					Cuttings suggest perched groundwater			
20		9 12 16	SPT-3		Very fine to fine sand, light grey with rust colored intrusions, slightly moist, dense, cannot be polished			
25		12 17 24	SPT-4		Very fine to fine sand, light grey with rust colored intrusions, slightly moist, dense, can be somewhat polished			
					HOLE TERMINIATED AT 26.5 FEET Hole collapsed at 15.5 feet after drilling Backilled with cuttings No groundwater encountered			
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; CO = Consolidation test; MD = Maximum Density

Client:	**Nolen Communities, LLC**
Project:	**Fox Point Farms**
Project No:	**3611-SD**
Date:	**10/25/2019**

Boring No. **P-1**

Infiltration Rate (Porchet Method)

Time Interval, Δt =	30
Final Depth to Water, D_F =	12.00
Test Hole Radius, r =	3.00
Initial Depth to Water, D_O =	12
Total Test Hole Depth, D_T =	41

Equation - $I_t = \dfrac{\Delta H\ (60r)}{\Delta t\ (r+2H_{avg})}$

$H_O = D_T - D_O$ =	29.00
$H_F = D_T - D_F$ =	29.00
$\Delta H = \Delta D = H_O - H_F$ =	0.00
$Havg = (H_O+H_F)/2$ =	29.00

I_t = 0.00 **Inches per Hour**

GEOTEK

Client:	**Nolen Communities, LLC**
Project:	**Fox Point Farms**
Project No:	**3611-SD**
Date:	**10/25/2019**

Boring No. **P-2**

Infiltration Rate (Porchet Method)

Time Interval, Δt =	30
Final Depth to Water, D_F =	12.00
Test Hole Radius, r =	3.00
Initial Depth to Water, D_O =	12
Total Test Hole Depth, D_T =	54

Equation - $I_t = \dfrac{\Delta H\ (60r)}{\Delta t\ (r+2H_{avg})}$

$H_O = D_T - D_O$ =	42.00
$H_F = D_T - D_F$ =	42.00
$\Delta H = \Delta D = H_O - H_F$ =	0.00
$H_{avg} = (H_O+H_F)/2$ =	42.00

I_t = 0.00 **Inches per Hour**

GEOTEK

Client:	**Nolen Communities, LLC**
Project:	**Fox Point Farms**
Project No:	**3611-SD**
Date:	**10/25/2019**

Boring No. **P-3**

Infiltration Rate (Porchet Method)

Time Interval, Δt =	30
Final Depth to Water, D_F =	12.00
Test Hole Radius, r =	3.00
Initial Depth to Water, D_O =	12
Total Test Hole Depth, D_T =	41

Equation - $I_t = \dfrac{\Delta H\ (60r)}{\Delta t\ (r+2H_{avg})}$

$H_O = D_T - D_O$ =	29.00
$H_F = D_T - D_F$ =	29.00
$\Delta H = \Delta D = H_O - H_F$ =	0.00
$Havg = (H_O+H_F)/2$ =	29.00

I_t = 0.00 **Inches per Hour**

GEOTEK

Client:	**Nolen Communities, LLC**
Project:	**Fox Point Farms**
Project No:	**3611-SD**
Date:	**10/25/2019**

Boring No. **P-4**

Infiltration Rate (Porchet Method)

Time Interval, Δt =	30
Final Depth to Water, D_F =	12.00
Test Hole Radius, r =	3.00
Initial Depth to Water, D_O =	12
Total Test Hole Depth, D_T =	48

Equation - $I_t = \dfrac{\Delta H\ (60r)}{\Delta t\ (r+2H_{avg})}$

$H_O = D_T - D_O$ =	36.00
$H_F = D_T - D_F$ =	36.00
$\Delta H = \Delta D = H_O - H_F$ =	0.00
$H_{avg} = (H_O+H_F)/2$ =	36.00

I_t = 0.00 **Inches per Hour**

GEOTEK

APPENDIX B

GEOTEK LABORATORY TEST RESULTS

Fox Point Farms
Encinitas, California
Project No. 3611-SD

GEOTEK

SUMMARY OF LABORATORY TESTING

Classification
Soils were identified in general accordance to the standard practice for description and identification of soils (visual-manual procedure) (ASTM Test Method D 2488). The soil identifications are shown on the log of borings in Appendix A.

Direct Shear
Shear testing was performed on a remolded sample using a direct shear machine of the strain-control type in general accordance with ASTM Test Method D 3080. The rate of deformation was approximately 0.035 inch per minute. The samples were sheared under varying confining loads in order to determine the coulomb shear strength parameters; angle of internal friction and cohesion. The results of the testing are presented at the rear of this appendix.

Expansion Index
The expansion potential of the soils was determined by performing expansion index testing on one sample in general accordance with ASTM D 4829. The results of the testing are provided below.

Boring No.	Depth (ft.)	Soil Type	Expansion Index	Classification
B-2 & B-4	0-3 & 0.5-2.5	Silty Sand	21	Low

In-Situ Moisture and Density
The natural water content was determined (ASTM D 2216) on samples of the materials recovered from the subsurface exploration. In addition, in-place dry density determination (ASTM D 2937) were performed on relatively undisturbed samples to measure the unit weight of the subsurface soils. Results of these tests are shown on the logs at the appropriate sample depths in Appendix A.

Moisture-Density Relationship
Laboratory testing was performed on a sample obtained during the subsurface exploration. The laboratory maximum dry density and optimum moisture content was determined in general accordance with ASTM D 1557. The results of the testing are provided below.

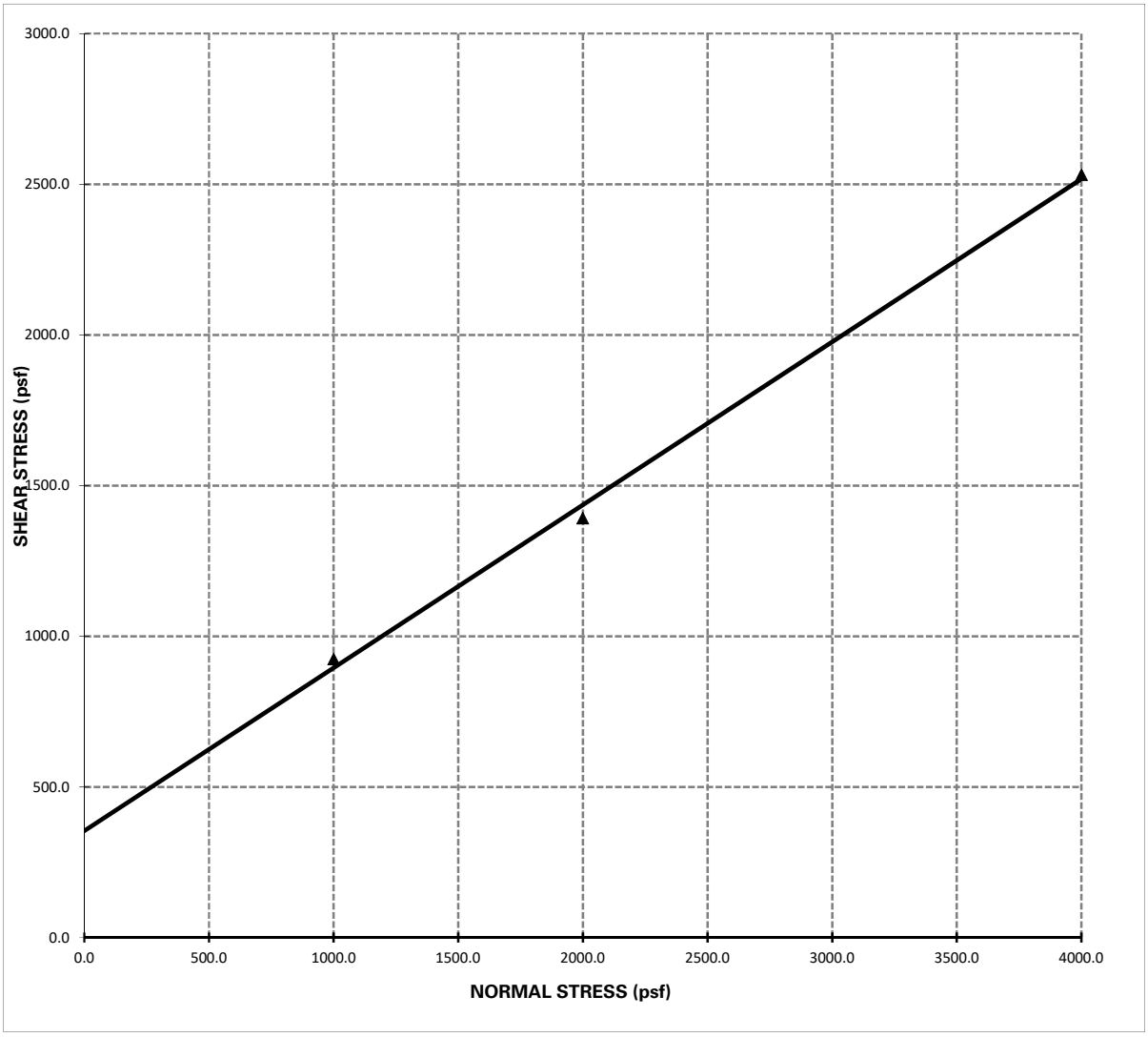
Boring No.	Depth (ft.)	Description	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
B-2 & B-4	0-3 & 0.5-2.5	Silty Sand	126.0	10.0

Sulfate Content
Testing to determine the water-soluble sulfate content was performed by others in general accordance with ASTM D4327. The results of the testing are provided at the rear of this appendix.

DIRECT SHEAR TEST

Project Name:	Fox Point Farms	***Sample Location:***	B-4 @ 0.5 - 2.5
Project Number:	3611-SD	***Date Tested:***	11/4/2019

PEAK VALUE



Shear Strength: Φ = **28.4** ° , **C = 354.00 psf**

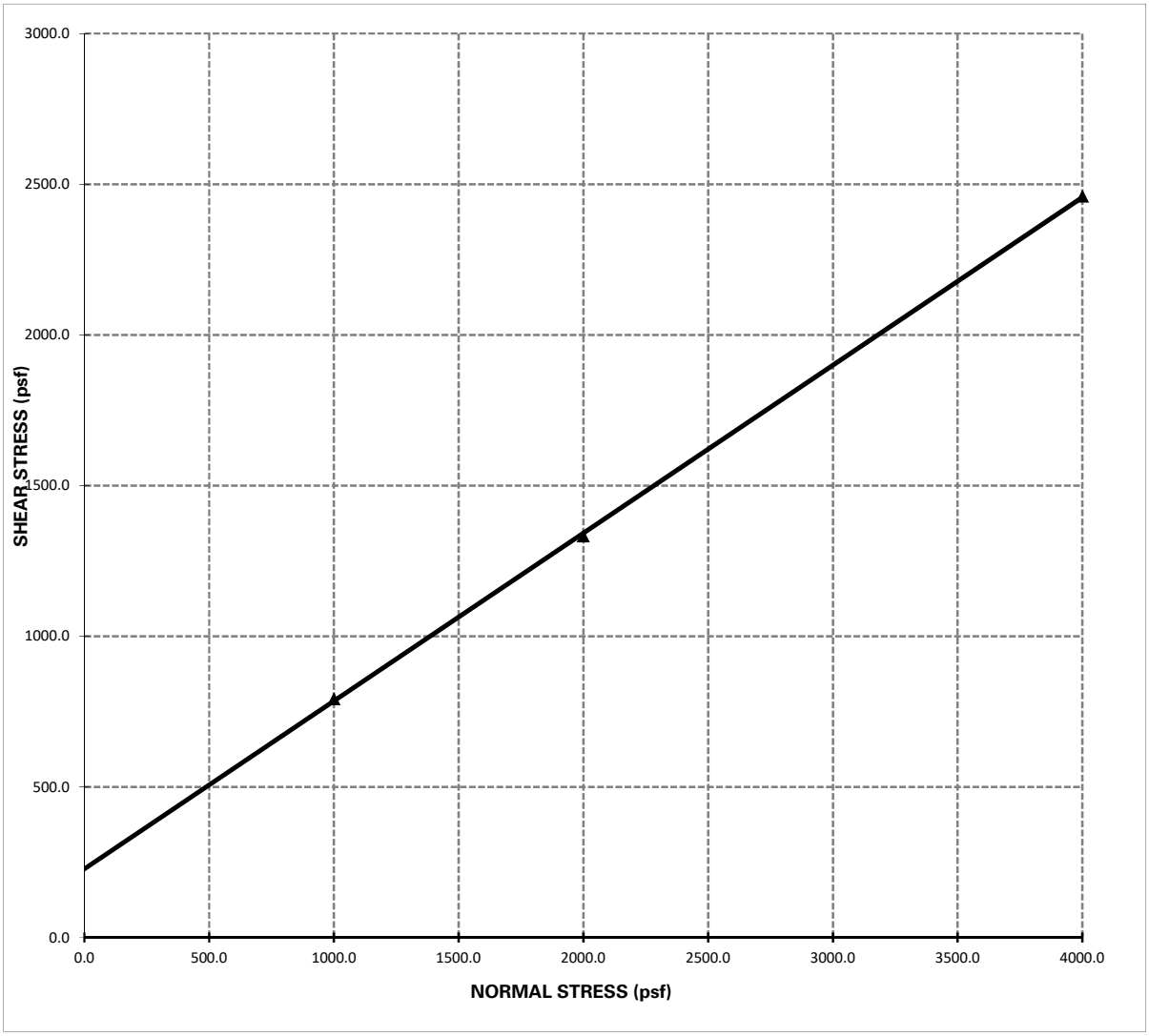
Notes: 1 - The soil specimen used in the shear box was a ring sample remolded to approximately 90% relative compaction from a bulk sample collected during the field investigation.

2 - The above reflect direct shear strength at saturated conditions.

3 - The tests were run at a shear rate of 0.035 in/min.

DIRECT SHEAR TEST

Project Name:	Fox Point Farms	***Sample Location:***	B-4 @ 0.5 - 2.5
Project Number:	3611-SD	***Date Tested:***	11/4/2019



Shear Strength: Φ = **29.1** ° , **C = 228.00 psf**

Notes: 1 - The soil specimen used in the shear box was a ring sample remolded to approximately 90% relative compaction from a bulk sample collected during the field investigation.

2 - The above reflect direct shear strength at saturated conditions.

3 - The tests were run at a shear rate of 0.035 in/min.

• ANALYSIS
• DESIGN

LaBelle • Marvin

• SOILS, ASPHALT TECHNOLOGY

PROFESSIONAL PAVEMENT ENGINEERING
A CALIFORNIA CORPORATION

November 5, 2019

Mr. Chris Livesey
GeoTek Inc.
1384 Poinsettia Avenue Suite A
Vista, CA 92081-8505

Project No. 45515

Attention Mr. Livesey:
Laboratory testing of the bulk soil sample delivered to our laboratory on 10/29/2019 has been completed.

Reference:	W.O. # 3611-SD
Project:	Fox Point Farm
Sample:	B-4

Data sheets and graphical presentations are transmitted herewith for your use and information. Any untested portion of the samples will be retained for a period of sixty (60) days prior to disposal. The opportunity to be of service is appreciated, and should you have any questions, kindly call.

Very truly yours,



Steven R. Marvin
RCE 30659

SRM:tw
Enclosures

2700 S. GRAND AVENUE • SANTA ANA, CA 92705-5404 • (714) 546-3468 • FAX (714) 546-5841
INFO@LABELLEMARVIN.COM

R - VALUE DATA SHEET

LaBelle Marvin

PROJECT No. 45515

DATE: 11/5/2019

BORING NO. B-4

Fox Point Farm

W.O.# 3611-SD

SAMPLE DESCRIPTION: Brown Sandy Clay

R-VALUE TESTING DATA | CA TEST 301			
	SPECIMEN ID		
	a	b	c
Mold ID Number	7	8	9
Water added, grams	37	85	46
Initial Test Water, %	10.9	15.6	11.8
Compact Gage Pressure,psi	250	40	110
Exudation Pressure, psi	690	239	510
Height Sample, Inches	2.45	2.52	2.47
Gross Weight Mold, grams	3077	3056	2903
Tare Weight Mold, grams	1953	1948	1772
Sample Wet Weight, grams	1124	1108	1131
Expansion, Inches x 10exp-4	40	10	32
Stability 2,000 lbs (160psi)	21 / 49	68 / 152	32 / 77
Turns Displacement	3.18	4.38	3.35
R-Value Uncorrected	64	3	45
R-Value Corrected	64	3	45
Dry Density, pcf	125.3	115.2	124.1

DESIGN CALCULATION DATA

Traffic Index Assumed:	4.0	4.0	4.0
G.E. by Stability	0.37	0.99	0.56
G. E. by Expansion	1.33	0.33	1.07

Equilibrium R-Value	**16** by EXUDATION	Examined & Checked: 11 /5/ 19
REMARKS:	Gf = 1.25 0.0% Retained on the 3/4" Sieve.	Steven R. Marvin, RCE 30659

The data above is based upon processing and testing samples as received from the field. Test procedures in accordance with latest revisions to Department of Transportation, State of California, Materials & Research Test Method No. 301.

R-VALUE GRAPHICAL PRESENTATION

LaBelle Marvin

PROJECT NO. 45515

DATE: 11 /5/ 19

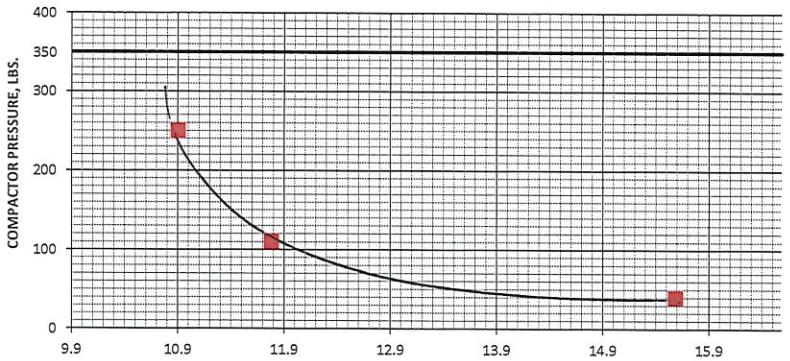
REMARKS:

BORING NO. B-4

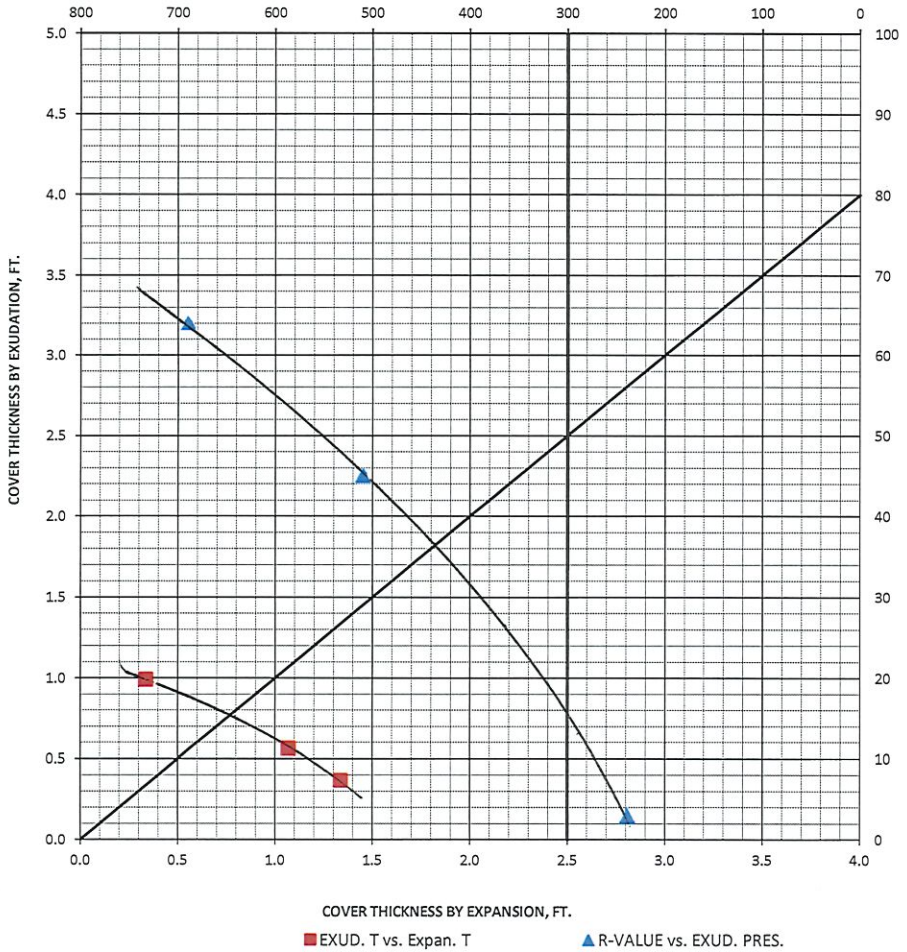
Fox Point Farm

W.O.# 3611-SD

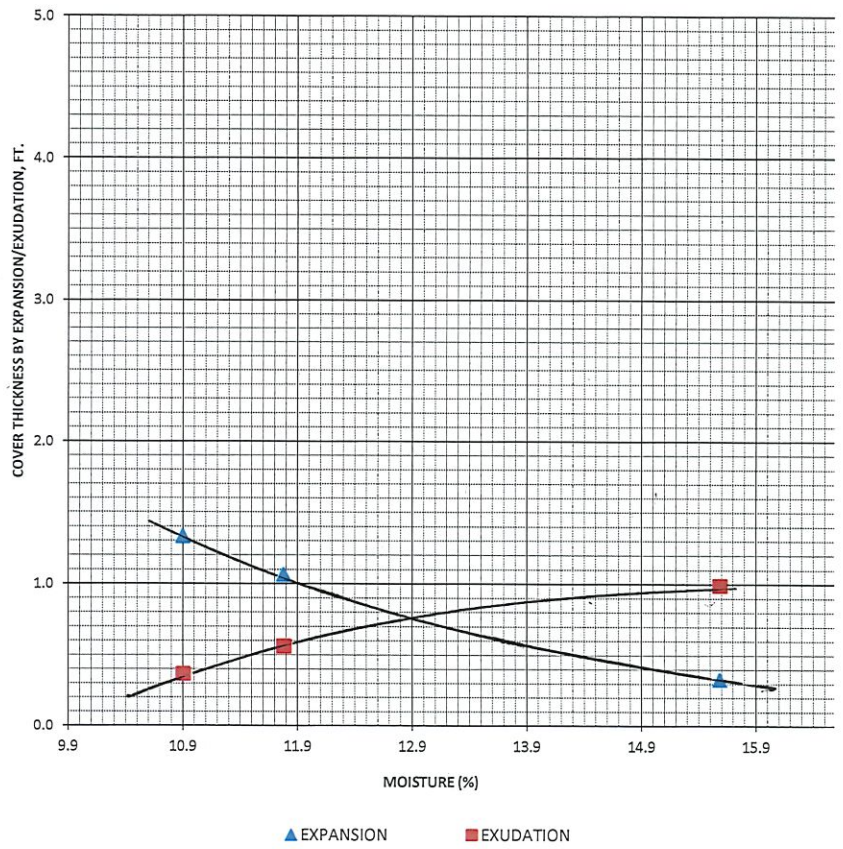
COMPACTOR PRESSURE vs MOISTURE %



COVER THICKNESS BY EXUDATION vs COVER THICKNESS BY EXPANSION



COVER THICKNESS vs MOISTURE %



Results Only Soil Testing for Fox Point Farms

November 8, 2019

Prepared for:
Anna Scott
GeoTek, Inc.
1548 North Maple Street
Corona, CA 92880
ascott@geotekusa.com

Project X Job#: S191106A
Client Job or PO#: 3611-SD

Respectfully Submitted,

Eduardo Hernandez, M.Sc., P.E.
Sr. Corrosion Consultant
NACE Corrosion Technologist #16592
Professional Engineer
California No. M37102
ehernandez@projectxcorrosion.com



Soil Analysis Lab Results

Client: GeoTek, Inc.
Job Name: Fox Point Farms
Client Job Number: 3611-SD
Project X Job Number: S191106A
November 8, 2019

	Method	ASTM D4327	
Bore# / Description	**Depth**	**Sulfates** SO_4^{2-}	
	(ft)	**(mg/kg)**	**(wt%)**
B-4	0.5-2.5	64.8	0.0065

Cations and Anions, except Sulfide and Bicarbonate, tested with Ion Chromatography
mg/kg = milligrams per kilogram (parts per million) of dry soil weight
ND = 0 = Not Detected | NT = Not Tested | Unk = Unknown
Chemical Analysis performed on 1:3 Soil-To-Water extract

APPENDIX C

GENERAL GRADING GUIDELINES

Fox Point Farms
Encinitas, California
Project No. 3611-SD

GEOTEK

GENERAL GRADING GUIDELINES

Guidelines presented herein are intended to address general construction procedures for earthwork construction. Specific situations and conditions often arise which cannot reasonably be discussed in general guidelines, when anticipated these are discussed in the text of the report. Often unanticipated conditions are encountered which may necessitate modification or changes to these guidelines. It is our hope that these will assist the contractor to more efficiently complete the project by providing a reasonable understanding of the procedures that would be expected during earthwork and the testing and observation used to evaluate those procedures.

General

Grading should be performed to at least the minimum requirements of governing agencies, Chapters 18 and 33 of the Uniform Building Code and the guidelines presented below.

Preconstruction Meeting

A preconstruction meeting should be held prior to site earthwork. Any questions the contractor has regarding our recommendations, general site conditions, apparent discrepancies between reported and actual conditions and/or differences in procedures the contractor intends to use should be brought up at that meeting. The contractor (including the main onsite representative) should review our report and these guidelines in advance of the meeting. Any comments the contractor may have regarding these guidelines should be brought up at that meeting.

Grading Observation and Testing

1. Observation of the fill placement should be provided by our representative during grading. Verbal communication during the course of each day will be used to inform the contractor of test results. The Contractor should receive a copy of the "Daily Field Report" indicating results of field density tests that day. If our representative does not provide the contractor with these reports, our office should be notified.
2. Testing and observation procedures are, by their nature, specific to the work or area observed and location of the tests taken, variability may occur in other locations. The contractor is responsible for the uniformity of the grading operations, our observations and test results are intended to evaluate the contractor's overall level of efforts during grading. The contractor's personnel are the only individuals participating in all aspect of site work. Compaction testing and observation should not be considered as relieving the contractor's responsibility to properly compact the fill.
3. Cleanouts, processed ground to receive fill, key excavations, and subdrains should be observed by our representative prior to placing any fill. It will be the Contractor's responsibility to notify our representative or office when such areas are ready for observation.
4. Density tests may be made on the surface material to receive fill, as considered warranted by this firm.
5. In general, density tests would be made at maximum intervals of two feet of fill height or every 1,000 cubic yards of fill placed. Criteria will vary depending on soil conditions and size of the fill. More frequent testing may be performed. In any case, an adequate number of field density tests should be made to evaluate the required compaction and moisture content is generally being obtained.
6. Laboratory testing to support field test procedures will be performed, as considered warranted, based on conditions encountered (e.g. change of material sources, types, etc.) Every effort will be

made to process samples in the laboratory as quickly as possible and in progress construction projects are our first priority. However, laboratory workloads may cause in delays and some soils may require a **minimum of 48 to 72 hours to complete test procedures**. Whenever possible, our representative(s) should be informed in advance of operational changes that might result in different source areas for materials.

7. Procedures for testing of fill slopes are as follows:
   a) Density tests should be taken periodically during grading on the flat surface of the fill three to five feet horizontally from the face of the slope.
   b) If a method other than over building and cutting back to the compacted core is to be employed, slope compaction testing during construction should include testing the outer six inches to three feet in the slope face to determine if the required compaction is being achieved.
8. Finish grade testing of slopes and pad surfaces should be performed after construction is complete.

Site Clearing

1. All vegetation, and other deleterious materials, should be removed from the site. If material is not immediately removed from the site it should be stockpiled in a designated area(s) well outside of all current work areas and delineated with flagging or other means. Site clearing should be performed in advance of any grading in a specific area.
2. Efforts should be made by the contractor to remove all organic or other deleterious material from the fill, as even the most diligent efforts may result in the incorporation of some materials. This is especially important when grading is occurring near the natural grade. All equipment operators should be aware of these efforts. Laborers may be required as root pickers.
3. Nonorganic debris or concrete may be placed in deeper fill areas provided the procedures used are observed and found acceptable by our representative. Typical procedures are similar to those indicated on Plate G-4.

Treatment of Existing Ground

1. Following site clearing, all surficial deposits of alluvium and colluvium as well as weathered or creep effected bedrock, should be removed (see Plates G-1, G-2 and G-3) unless otherwise specifically indicated in the text of this report.
2. In some cases, removal may be recommended to a specified depth (e.g. flat sites where partial alluvial removals may be sufficient) the contractor should not exceed these depths unless directed otherwise by our representative.
3. Groundwater existing in alluvial areas may make excavation difficult. Deeper removals than indicated in the text of the report may be necessary due to saturation during winter months.
4. Subsequent to removals, the natural ground should be processed to a depth of six inches, moistened to near optimum moisture conditions and compacted to fill standards.
5. Exploratory back hoe or dozer trenches still remaining after site removal should be excavated and filled with compacted fill if they can be located.

Subdrainage

1. Subdrainage systems should be provided in canyon bottoms prior to placing fill, and behind buttress and stabilization fills and in other areas indicated in the report. Subdrains should conform to schematic diagrams G-1 and G-5, and be acceptable to our representative.

2. For canyon subdrains, runs less than 500 feet may use six-inch pipe. Typically, runs in excess of 500 feet should have the lower end as eight-inch minimum.
3. Filter material should be clean, 1/2 to 1-inch gravel wrapped in a suitable filter fabric. Class 2 permeable filter material per California Department of Transportation Standards tested by this office to verify its suitability, may be used without filter fabric. A sample of the material should be provided to the Soils Engineer by the contractor at least two working days before it is delivered to the site. The filter should be clean with a wide range of sizes.
4. Approximate delineation of anticipated subdrain locations may be offered at 40-scale plan review stage. During grading, this office would evaluate the necessity of placing additional drains.
5. All subdrainage systems should be observed by our representative during construction and prior to covering with compacted fill.
6. Subdrains should outlet into storm drains where possible. Outlets should be located and protected. The need for backflow preventers should be assessed during construction.
7. Consideration should be given to having subdrains located by the project surveyors.

Fill Placement

1. Unless otherwise indicated, all site soil and bedrock may be reused for compacted fill; however, some special processing or handling may be required (see text of report).
2. Material used in the compacting process should be evenly spread, moisture conditioned, processed, and compacted in thin lifts six (6) to eight (8) inches in compacted thickness to obtain a uniformly dense layer. The fill should be placed and compacted on a nearly horizontal plane, unless otherwise found acceptable by our representative.
3. If the moisture content or relative density varies from that recommended by this firm , the Contractor should rework the fill until it is in accordance with the following:
    a) Moisture content of the fill should be at or above optimum moisture. Moisture should be evenly distributed without wet and dry pockets. Pre-watering of cut or removal areas should be considered in addition to watering during fill placement, particularly in clay or dry surficial soils. The ability of the contractor to obtain the proper moisture content will control production rates.
    b) Each six-inch layer should be compacted to at least 90 percent of the maximum dry density in compliance with the testing method specified by the controlling governmental agency. In most cases, the testing method is ASTM Test Designation D-1557.
4. Rock fragments less than eight inches in diameter may be utilized in the fill, provided:
    a) They are not placed in concentrated pockets;
    b) There is a sufficient percentage of fine-grained material to surround the rocks;
    c) The distribution of the rocks is observed by and acceptable to our representative.
5. Rocks exceeding eight (8) inches in diameter should be taken off site, broken into smaller fragments, or placed in accordance with recommendations of this firm in areas designated suitable for rock disposal (See Plate G-4). On projects where significant large quantities of oversized materials are anticipated, alternate guidelines for placement may be included. If significant oversize materials are encountered during construction, these guidelines should be requested.
6. In clay soil dry or large chunks or blocks are common; if in excess of eight (8) inches minimum dimension then they are considered as oversized. Sheepsfoot compactors or other suitable methods should be used to break up blocks. When dry they should be moisture conditioned to provide a uniform condition with the surrounding fill.

Slope Construction

1. The Contractor should obtain a minimum relative compaction of 90 percent out to the finished slope face of fill slopes. This may be achieved by either overbuilding the slope and cutting back to the compacted core, or by direct compaction of the slope face with suitable equipment.
2. Slopes trimmed to the compacted core should be overbuilt by at least three (3) feet with compaction efforts out to the edge of the false slope. Failure to properly compact the outer edge results in trimming not exposing the compacted core and additional compaction after trimming may be necessary.
3. If fill slopes are built "at grade" using direct compaction methods then the slope construction should be performed so that a constant gradient is maintained throughout construction. Soil should not be "spilled" over the slope face nor should slopes be "pushed out" to obtain grades. Compaction equipment should compact each lift along the immediate top of slope. Slopes should be back rolled or otherwise compacted at approximately every 4 feet vertically as the slope is built.
4. Corners and bends in slopes should have special attention during construction as these are the most difficult areas to obtain proper compaction.
5. Cut slopes should be cut to the finished surface, excessive undercutting and smoothing of the face with fill may necessitate stabilization.

Keyways, Buttress and Stabilization Fills

Keyways are needed to provide support for fill slope and various corrective procedures.

1. Side-hill fills should have an equipment-width key at their toe excavated through all surficial soil and into competent material and tilted back into the hill (Plates G-2, G-3). As the fill is elevated, it should be benched through surficial soil and slopewash, and into competent bedrock or other material deemed suitable by our representatives (See Plates G-1, G-2, and G-3).
2. Fill over cut slopes should be constructed in the following manner:
   a) All surficial soils and weathered rock materials should be removed at the cut-fill interface.
   b) A key at least one (1) equipment width wide (or as needed for compaction) and tipped at least one (1) foot into slope should be excavated into competent materials and observed by our representative.
   c) The cut portion of the slope should be excavated prior to fill placement to evaluate if stabilization is necessary, the contractor should be responsible for any additional earthwork created by placing fill prior to cut excavation.
   (See Plate G-3 for schematic details.)
3. Daylight cut lots above descending natural slopes may require removal and replacement of the outer portion of the lot. A schematic diagram for this condition is presented on Plate G-2.
4. A basal key is needed for fill slopes extending over natural slopes. A schematic diagram for this condition is presented on Plate G-2.
5. All fill slopes should be provided with a key unless within the body of a larger overall fill mass. Please refer to Plate G-3, for specific guidelines.

Anticipated buttress and stabilization fills are discussed in the text of the report. The need to stabilize other proposed cut slopes will be evaluated during construction. Plate G-5 is shows a schematic of buttress construction.

1. All backcuts should be excavated at gradients of 1:1 or flatter. The backcut configuration should be determined based on the design, exposed conditions and need to maintain a minimum fill width and provide working room for the equipment.
2. On longer slopes backcuts and keyways should be excavated in maximum 250 feet long segment. The specific configurations will be determined during construction.
3. All keys should be a minimum of two (2) feet deep at the toe and slope toward the heel at least one foot or two (2%) percent whichever is greater.
4. Subdrains are to be placed for all stabilization slopes exceeding 10 feet in height. Lower slopes are subject to review. Drains may be required. Guidelines for subdrains are presented on Plate G-5.
5. Benching of backcuts during fill placement is required.

Lot Capping

1. When practical, the upper three (3) feet of material placed below finish grade should be comprised of the least expansive material available. Preferably, highly and very highly expansive materials should not be used. We will attempt to offer advise based on visual evaluations of the materials during grading, but it must be realized that laboratory testing is needed to evaluate the expansive potential of soil. Minimally, this testing takes two (2) to four (4) days to complete.
2. Transition lots (cut and fill) both per plan and those created by remedial grading (e.g. lots above stabilization fills, along daylight lines, above natural slope, etc.) should be capped with a three foot thick compacted fill blanket.
3. Cut pads should be observed by our representative(s) to evaluate the need for overexcavation and replacement with fill. This may be necessary to reduce water infiltration into highly fractured bedrock or other permeable zones, and/or due to differing expansive potential of materials beneath a structure. The overexcavation should be at least three feet. Deeper overexcavation may be recommended in some cases.

ROCK PLACEMENT AND ROCK FILL GUIDELINES

It is anticipated that large quantities of oversize material would be generated during grading. It's likely that such materials may require special handling for burial. Although alternatives may be developed in the field, the following methods of rock disposal are recommended on a preliminary basis.

Limited Larger Rock

When materials encountered are principally soil with limited quantities of larger rock fragments or boulders, placement in windrows is recommended. The following procedures should be applied:

1. Oversize rock (greater than 8 inch) should be placed in windrows.
   a) Windrows are rows of single file rocks placed to avoid nesting or clusters of rock.
   b) Each adjacent rock should be approximately the same size (within ~one foot in diameter).
   c) The maximum rock size allowed in windrows is four feet
2. A minimum vertical distance of three feet between lifts should be maintained. Also, the windrows should be offset from lift to lift. Rock windrows should not be closer than 15 feet to the face of fill slopes and sufficient space must be maintained for proper slope construction (see Plate G-4).
3. Rocks greater than eight inches in diameter should not be placed within seven feet of the finished subgrade for a roadway or pads and should be held below the depth of the lowest utility. This will allow easier trenching for utility lines.

4. Rocks greater than four feet in diameter should be broken down, if possible, or they may be placed in a dozer trench. Each trench should be excavated into the compacted fill a minimum of one foot deeper than the largest diameter of rock.
   a) The rock should be placed in the trench and granular fill materials (SE>30) should be flooded into the trench to fill voids around the rock.
   b) The over size rock trenches should be no closer together than 15 feet from any slope face.
   c) Trenches at higher elevation should be staggered and there should be a minimum of four feet of compacted fill between the top of the one trench and the bottom of the next higher trench.
   d) It would be necessary to verify 90 percent relative compaction in these pits. A 24 to 72 hour delay to allow for water dissipation should be anticipated prior to additional fill placement.

Structural Rock Fills

If the materials generated for placement in structural fills contains a significant percentage of material more than six (6) inch in one dimension, then placement using conventional soil fill methods with isolated windrows would not be feasible. In such cases the following could be considered.

1. Mixes of large of rock or boulders may be placed as rock fill. They should be below the depth of all utilities both on pads and in roadways and below any proposed swimming pools or other excavations. If these fills are placed within seven (7) feet of finished grade they may effect foundation design.
2. Rock fills are required to be placed in horizontal layers that should **not exceed two feet in thickness, or the maximum rock size present, which ever is less**. All rocks exceeding two feet should be broken down to a smaller size, windrowed (see above), or disposed of in non-structural fill areas. Localized larger rock up to 3 feet in largest dimension may be placed in rock fill as follows:
   a) individual rocks are placed in a given lift so as to be roughly 50% exposed above the typical surface of the fill ,
   b) loaded rock trucks or alternate compactors are worked around the rock on all sides to the satisfaction of the soil engineer,
   c) the portion of the rock above grade is covered with a second lift.
3. Material placed in each lift should be well graded. No unfilled spaces (voids) should be permitted in the rock fill.

Compaction procedures:

Compaction of rock fills is largely procedural. The following procedures have been found to generally produce satisfactory compaction.

1. Provisions for routing of construction traffic over the fill should be implemented.
   a) Placement should be by rock trucks crossing the lift being placed and dumping at its edge.
   b) The trucks should be routed so that each pass across the fill is via a different path and that all areas are uniformly traversed.
   c) The dumped piles should be knocked down and spread by a large dozer (D-8 or larger suggested). (Water should be applied before and during spreading.)
2. Rock fill should be generously watered (sluiced)
   a) Water should be applied by water trucks to the:
      i) dump piles,

ii) front face of the lift being placed and,
iii) surface of the fill prior to compaction.

b) No material should be placed without adequate water.

c) The number of water trucks and water supply should be sufficient to provide constant water.

d) Rock fill placement should be suspended when water trucks are unavailable:
i) for more than 5 minutes straight, or,
ii) for more than 10 minutes/hour.

3. In addition to the truck pattern and at the discretion of the soil engineer, large, rubber tired compactors may be required.
a) The need for this equipment will depend largely on the ability of the operators to provide complete and uniform coverage by wheel rolling with the trucks.
b) Other large compactors will also be considered by the soil engineer provided that required compaction is achieved.

4. Placement and compaction of the rock fill is largely procedural. Observation by trenching should be made to check:
a) the general segregation of rock size,
b) for any unfilled spaces between the large blocks, and
c) the matrix compaction and moisture content.

5. Test fills may be required to evaluate relative compaction of finer grained zones or as deemed appropriate by the soil engineer.
a) A lift should be constructed by the methods proposed as proposed

6. Frequency of the test trenching is to be at the discretion of the soil engineer.
Control areas may be used to evaluate the contractors procedures.

7. A minimum horizontal distance of 15 feet should be maintained from the face of the rock fill and any finish slope face. At least the outer 15 feet should be built of conventional fill materials.

Piping Potential and Filter Blankets:

Where conventional fill is placed over rock fill, the potential for piping (migration) of the fine grained material from the conventional fill into rock fills will need to be addressed.
The potential for particle migration is related to the grain size comparisons of the materials present and in contact with each other. Provided that 15 percent of the finer soil is larger than the effective pore size of the coarse soil, then particle migration is substantially mitigated. This can be accomplished with a well-graded matrix material for the rock fill and a zone of fill similar to the matrix above it. The specific gradation of the fill materials placed during grading must be known to evaluate the need for any type of filter that may be necessary to cap the rock fills. This, unfortunately, can only be accurately determined during construction.

In the event that poorly graded matrix is used in the rock fills, properly graded filter blankets 2 to 3 feet thick separating rock fills and conventional fill may be needed. As an alternative, use of two layers of filter fabric (Mirafi 700 x or equivalent) could be employed on top of the rock fill. In order to mitigate excess puncturing, the surface of the rock fill should be well broken down and smoothed prior to placing the filter fabric. The first layer of the fabric may then be placed and covered with relatively permeable fill material (with respect to overlying material) 1 to 2 feet thick. The relative permeable material should be compacted to fill standards. The second layer of fabric should be placed and conventional fill placement continued.

Subdrainage

Rock fill areas should be tied to a subdrainage system. If conventional fill is placed that separates the rock from the main canyon subdrain then a secondary system should be installed. A system consisting of an adequately graded base (3 to 4 percent to the lower side) with a collector system and outlets may suffice.

Additionally, at approximately every 25 foot vertical interval, a collector system with outlets should be placed at the interface of the rock fill and the conventional fill blanketing a fill slope

Monitoring

Depending upon the depth of the rock fill and other factors, monitoring for settlement of the fill areas may be needed following completion of grading. Typically, if rock fill depths exceed 40 feet, monitoring would be recommend prior to construction of any settlement sensitive improvements. Delays of 3 to 6 months or longer can be expected prior to the start of construction.

UTILITY TRENCH CONSTRUCTION AND BACKFILL

Utility trench excavation and backfill is the contractors responsibility. The geotechnical consultant typically provides periodic observation and testing of these operations. While, efforts are made to make sufficient observations and tests to verify that the contractors' methods and procedures are adequate to achieve proper compaction, it is typically impractical to observe all backfill procedures. As such, it is critical that the contractor use consistent backfill procedures.

Compaction methods vary for trench compaction and experience indicates many methods can be successful. However, procedures that "worked" on previous projects may or may not prove effective on a given site. The contractor(s) should outline the procedures proposed, so that we may discuss them **prior** to construction. We will offer comments based on our knowledge of site conditions and experience.

1. Utility trench backfill in slopes, structural areas, in streets and beneath flat work or hardscape should be brought to at least optimum moisture and compacted to at least 90 percent of the laboratory standard. Soil should be moisture conditioned prior to placing the trench.
2. Flooding and jetting are not typically recommended or acceptable for native soils. Flooding or jetting may be used with select sand having a Sand Equivalent (SE) of 30 or higher. This is typically limited to the following uses:
   a) shallow (12 + inches) under slab interior trenches and,
   b) as bedding in pipe zone.

   The water should be allowed to dissipate prior to pouring slabs or completing trench compaction.
3. Care should be taken not to place soils at high moisture content within the upper three feet of the trench backfill in street areas, as overly wet soils may impact subgrade preparation. Moisture may be reduced to 2% below optimum moisture in areas to be paved within the upper three feet below sub grade.
4. Sand backfill should not be allowed in exterior trenches adjacent to and within an area extending below a 1:1 projection from the outside bottom edge of a footing, unless it is similar to the surrounding soil.
5. Trench compaction testing is generally at the discretion of the geotechnical consultant. Testing frequency will be based on trench depth and the contractors procedures. A probing rod would be used to assess the consistency of compaction between tested areas and untested areas. If zones are found that are considered less compact than other areas, this would be brought to the contractors attention.

JOB SAFETY

General

Personnel safety is a primary concern on all job sites. The following summaries our safety considerations for use by all our employees on multi-employer construction sites. On ground personnel are at highest risk of injury and possible fatality on grading construction projects. The company recognizes that construction activities will vary on each site and that job site safety is the contractor's responsibility. However, it is, imperative that all personnel be safety conscious to avoid accidents and potential injury.

In an effort to minimize risks associated with geotechnical testing and observation, the following precautions are to be implemented for the safety of our field personnel on grading and construction projects.

1. Safety Meetings: Our field personnel are directed to attend the contractor's regularly scheduled safety meetings.
2. Safety Vests: Safety vests are provided for and are to be worn by our personnel while on the job site.
3. Safety Flags: Safety flags are provided to our field technicians; one is to be affixed to the vehicle when on site, the other is to be placed atop the spoil pile on all test pits.

In the event that the contractor's representative observes any of our personnel not following the above, we request that it be brought to the attention of our office.

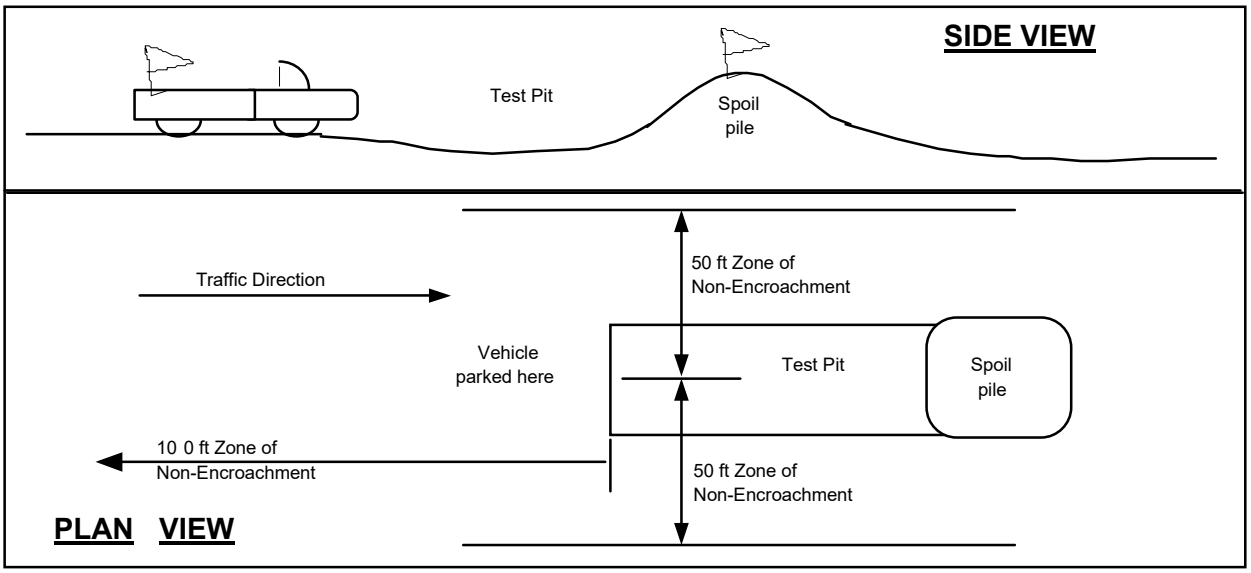
Test Pits Location, Orientation and Clearance

The technician is responsible for selecting test pit locations. The primary concern is the technician's safety. However, it is necessary to take sufficient tests at various locations to obtain a representative sampling of the fill. As such, efforts will be made to coordinate locations with the grading contractors authorized representatives (e.g. dump man, operator, supervisor, grade checker, etc.), and to select locations following or behind the established traffic pattern, preferable outside of current traffic. The contractors authorized representative should direct excavation of the pit and safety during the test period. Again, safety is the paramount concern.

Test pits should be excavated so that the spoil pile is placed away from oncoming traffic. The technician's vehicle is to be placed next to the test pit, opposite the spoil pile. This necessitates that the fill be maintained in a drivable condition. Alternatively, the contractor may opt to park a piece of equipment in front of test pits, particularly in small fill areas or those with limited access.

A zone of non-encroachment should be established for all test pits (see diagram below) No grading equipment should enter this zone during the test procedure. The zone should extend outward to the sides approximately 50 feet from the center of the test pit and 100 feet in the direction of traffic flow. This zone is established both for safety and to avoid excessive ground vibration, which typically decreases test results.

TEST PIT SAFETY PLAN



Slope Tests

When taking slope tests, the technician should park their vehicle directly above or below the test location on the slope. The contractor's representative should effectively keep all equipment at a safe operation distance (e.g. 50 feet) away from the slope during testing.

The technician is directed to withdraw from the active portion of the fill as soon as possible following testing. The technician's vehicle should be parked at the perimeter of the fill in a highly visible location.

Trench Safety:

It is the contractor's responsibility to provide safe access into trenches where compaction testing is needed. Trenches for all utilities should be excavated in accordance with CAL-OSHA and any other applicable safety standards. Safe conditions will be required to enable compaction testing of the trench backfill.

All utility trench excavations in excess of 5 feet deep, which a person enters, are to be shored or laid back. Trench access should be provided in accordance with OSHA standards. Our personnel are directed not to enter any trench by being lowered or "riding down" on the equipment.

Our personnel are directed not to enter any excavation which;

1. is 5 feet or deeper unless shored or laid back,
2. exit points or ladders are not provide,
3. displays any evidence of instability, has any loose rock or other debris which could fall into the trench, or
4. displays any other evidence of any unsafe conditions regardless of depth.

If the contractor fails to provide safe access to trenches for compaction testing, our company policy requires that the soil technician withdraws and notifies their supervisor. The contractors representative will then be contacted in an effort to effect a solution. All backfill not tested due to safety concerns or other reasons is subject to reprocessing and/or removal.

Procedures

In the event that the technician's safety is jeopardized or compromised as a result of the contractor's failure to comply with any of the above, the technician is directed to inform both the developer's and contractor's representatives. If the condition is not rectified, the technician is required, by company policy, to immediately withdraw and notify their supervisor. The contractor's representative will then be contacted in an effort to effect a solution. No further testing will be performed until the situation is rectified. Any fill placed in the interim can be considered unacceptable and subject to reprocessing, recompaction or removal.

In the event that the soil technician does not comply with the above or other established safety guidelines, we request that the contractor bring this to technicians attention and notify our project manager or office. Effective communication and coordination between the contractors' representative and the field technician(s) is strongly encouraged in order to implement the above safety program and safety in general.

The safety procedures outlined above should be discussed at the contractor's safety meetings. This will serve to inform and remind equipment operators of these safety procedures particularly the zone of non-encroachment.

The safety procedures outlined above should be discussed at the contractor's safety meetings. This will serve to inform and remind equipment operators of these safety procedures particularly the zone of non-encroachment.

APPENDIX H STORMWATER INTAKE FORM AND STANDARD PROJECT SWQMP

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City of Encinitas
Stormwater Intake Form for All Developments and Standard / Basic Project SWQMP

SW

Project Identification	
Project/Applicant Name: Fox Point Farms	
Permit/Application Number:	Date: 5/19/2019
Site Address: 1150 Quail Gardens Drive, Encinitas, CA 92024	APN: 254-612-12
Scope of work/project description: The project proposes the construction of 250 multi-family homes, a 3,500 SF restaurant, a 10,000 SF recreational center, and approximately 5,000 SF of multi-use event space. Paved private driveways and alleyways as well as onsite grading and supporting infrastructure such as sewer, and water are also proposed as a part of this development.	

Determination of Project Status and Requirements

This form will identify permanent, post construction BMP requirements. Refer to City of Encinitas Stormwater BMP Design Manual for guidance.

Step 1: Is the project a "development project"? Development projects are defined as "construction, rehabilitation, redevelopment, or reconstruction of any public or private projects". See Section 1.3 and Table 1-2 of the manual for guidance. For example, interior remodels, roof replacements, and electrical and plumbing work are not development projects.	☑ Yes	***Go to Step 2.***
	□ No	***Stop.*** Permanent BMP requirements do not apply. No SWQMP will be required. Provide discussion below.

If "No", provide discussion / justification explaining why the project is not a "development project":

Step 2: Complete questions below for Project Type Determination.

The project is (select one): □ New Development ☑ Redevelopment

The total proposed, newly created and/or replaced impervious area is: 401,552 ft^2

Is the project in any of the following categories, (a) through (f) below?

Yes	No		
☑	□	(a)	New development projects or redevelopment projects that create and/or replaced 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects.
☑	□	(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.
☑	□	(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 (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.
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 discharge directly to an Environmentally Sensitive Area (ESA). "Discharge 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 SDRWQCB; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and SDRWQCB; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees. See manual Section 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. This category includes retail gasoline outlets that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic 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 manual for exclusions specific to this category.*

Does the project meet the definition of one or more of the PDP categories (a) through (f) listed above?

☑Yes – **The project is a Priority Development Project, the applicant shall provide PDP Post Construction BMPs and provide a PDP SWQMP. *Stop here and complete PDP SWQMP.***

□ No – Does the project propose 500 SF or more of new and/or replaced impervious surface area?

□ Yes – **The project is a Standard Project, the applicant shall implement Structural Post Construction BMPs, site design, and source control BMPs.**
Complete Step 3, 4, & 5.

□ No – **The project is a Basic Project, the applicant shall implement site design and source control measures. *Complete Step 3 & 4.***

Step 3: Source Control BMP Checklist – All "Development Projects" Must Complete

All development projects must implement source control BMPs SC-1 through SC-6 where applicable and feasible. See Chapter 4 and Appendix E of the 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 and/or Appendix E of the manual. Discussion / justification is not required.
- "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 may be provided.

Source Control Requirement	Applied?		
SC-1 Prevention of Illicit Discharges into the storm drain	☑ Yes	□ No	□ N/A
SC-2 Storm Drain Stenciling or Signage	☑ Yes	□ No	□ N/A
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	□ Yes	□ No	☑ N/A
SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	□ Yes	□ No	☑ N/A
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☑Yes	□ No	□ N/A
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)			
□ Onsite storm drain inlets	☑Yes	□ No	□ N/A
□ Interior floor drains and elevator shaft sump pumps drain to sewer	□ Yes	□ No	☑ N/A
□ Interior parking garages drain to sewer	□ Yes	□ No	☑ N/A
□ Need for future indoor & structural pest control	□ Yes	□ No	☑ N/A
□ Landscape/outdoor pesticide use	☑Yes	□ No	□ N/A
□ Pools, spas, ponds, decorative fountains, and other water features	☑ Yes	□ No	□ N/A
□ Food service	☑ Yes	□ No	□ N/A
□ Refuse/Trash areas must be covered	□ Yes	□ No	□ N/A
□ Industrial processes	□ Yes	□ No	☑ N/A
□ Outdoor storage of equipment or materials must be covered	□ Yes	□ No	☑ N/A
□ Vehicle and equipment cleaning	□ Yes	□ No	☑ N/A
□ Vehicle/equipment repair and maintenance	□ Yes	□ No	☑ N/A
□ Fuel dispensing areas	□ Yes	□ No	☑ N/A
□ Loading docks	□ Yes	□ No	☑ N/A
□ Fire sprinkler test water	□ Yes	□ No	☑ N/A
□ Miscellaneous drain or wash water	□ ☑Yes	□ No	☑ N/A
□ Plazas, sidewalks, and parking lots		□ No	□ N/A

Discussion / justification if SC-1 through SC-6 not implemented. Justification must be provided for ALL "No" answers shown above.

Step 4: Site Design BMP Checklist – All "Development Projects" Must Complete

All development projects must implement site design BMPs SD-1 through SD-8 where applicable and feasible. See Chapter 4 and Appendix E of the 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 and/or Appendix E of the manual. Discussion / justification is not required.
- "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 may be provided.

Source Control Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic	☑ Yes	□ No	□ N/A
SD-2 Conserve Natural Areas, Soils, and Vegetation	□ Yes	☑ No	□ N/A
SD-3 Minimize Impervious Area	☑ Yes	□ No	□ N/A
SD-4 Minimize Soil Compaction	☑ Yes	□ No	□ N/A
SD-5 Impervious Area Dispersion - Directly Connected Impervious Areas (e.g. roof downspouts connected to	☑ Yes	□ No	□ N/A
SD-6 Runoff Collection	☑ Yes	□ No	□ N/A
SD-7 Landscaping with Native or Drought Tolerant Species	☑ Yes	□ No	□ N/A
SD-8 Harvesting and Using Precipitation	□ Yes	☑ No	□ N/A

Discussion / justification if SD-1 through SD-8 not implemented. Justification must be provided for ALL "No" answers shown above.

The project proposes to mass grade the entire site as a part of the construction activities for the site. A majority of the site will be developed consisting of multi-family home, private driveways and supporting infrastructure.

Harvest and reuse is not feasible for this project.

Step 5: Standard Project BMP Sizing for ≥500sf New/Replaced Impervious Surface Areas

Projects that create and/or remove and replace 500sf or greater of impervious surface collectively over the entire project site shall provide natural biofiltration and/or bioretention BMPs. The applicant may use the Design Capture Volume method (attach calculations hereon; see Appendix B of BMP Design Manual), or may utilize the following calculation:

16,062 SF = 0.04 x 401,552 SF

MINIMUM EFFECTIVE BMP AREA = 0.04 x Total new and/or removed and replaced impervious surfaces

Describe the selected Structural BMP Design including type, location, size, etc. below:

The project is proposing lined biofiltration basins that will integrate both pollutant control measures with flow control for hydromodification management. The basins have been sized to demonstrate compliance with HMP using the Environmental Protection Agency's (EPA) Storm Water Management Model (SWMM). The model was set up to demonstrate compliance assuming no infiltration, consistent with the Type D soils found onsite. A low-flow threshold of 0.1Q2 was used for hydromodification management requirements as a channel/geomorphic assessment was not performed.

Project Owner's Certification:

I hereby acknowledge that my project is subject to the stormwater quality regulations of the City of Encinitas and certify that my project will provide satisfactory stormwater quality measures both during the construction process and afterwards.

If my project is designated as a Priority or a Standard Project, I further acknowledge my understanding that the permanent stormwater treatment features must remain in place, be inspected at least once annually, and be maintained in good working order. Removal or modification of these features without prior City authorization is prohibited.

I certify that I have reviewed the information contained in this form and verified that it is both complete and correct.

Signature of Owner

Date

Print Name

Company Name

Agent's Certification:

I hereby certify that this project will be designed in conformance with the stormwater quality regulations of the City of Encinitas.

I certify that I have reviewed the information contained in this form and verified that it is both complete and correct.



Signature of Agent

5/19/2020

Date

Tadd Dolfo

Print Name

Pasco Laret Suiter and Associates

Company Name

Engineer

Working Capacity of Agent (architect, engineer)

Place Professional Seal Above

APPENDIX I PALEONTOLOGICAL RECORDS SEARCH

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23 March 2020

John T. O'Connor
ECORP Consulting, Inc.
3838 Camino Del Rio North, Suite 370
San Diego, CA 92108

RE: Paleontological Records Search – Fox Point Farms

Dear Dr. O'Connor:

This letter presents the results of a paleontological records search conducted for the Fox Point Farms project (Project), located in the northwestern portion of the City of Encinitas, San Diego County, California. The Project site is located along the north side of Leucadia Boulevard, between Sidonia Street and Quail Gardens Drive, and is bordered to the north by undeveloped land.

Methods

A review of published geological maps covering the Project site and surrounding area was conducted to determine the specific geologic units underlying the Project site. Each geologic unit was subsequently assigned a paleontological resource sensitivity (Deméré and Walsh, 1993). In addition, a search of the paleontological collection records housed at the San Diego Natural History Museum (SDNHM) was conducted in order to determine if any documented fossil collection localities occur at the Project site or within the immediate surrounding area.

Results

Published geological reports (e.g., Kennedy and Tan, 2007) covering the Project area indicate that the proposed Project has the potential to impact early to middle Pleistocene-age very old paralic deposits (broadly equivalent to the Lindavista Formation) and the underlying middle Eocene-age Santiago Formation. These geologic units and their paleontological sensitivity are summarized below. The SDNHM has a total of 17 recorded fossil localities that lie within or within one mile of the Project site. Two localities are from the Lindavista Formation and 12 localities are from the Santiago Formation, and are discussed in greater detail below. The remaining three localities are from geologic units that are not anticipated to be impacted by construction of the Project, and are not discussed further.

Very old paralic deposits (Lindavista Formation) – The marine and/or non-marine terrace deposits of the early to middle Pleistocene-age (approximately 1.5 to 0.5 million years old) Lindavista Formation underlie the majority of the Project site at the surface. The SDNHM has two recorded fossil collection localities from the Lindavista Formation within a one-mile radius of the Project site, which produced trace fossil burrows in matrix, including those produced by pholad clams. Elsewhere in San Diego County, the Lindavista Formation has produced remains of nearshore marine invertebrates (e.g., clams, scallops, snails, barnacles, and sand dollars), as well as sparse remains of marine vertebrates (e.g., sharks and baleen whales). Fossils have primarily been recovered from localities in Tierrasanta and Mira Mesa where the Lindavista Formation is assigned a high paleontological sensitivity; elsewhere in San

Diego County, including in the vicinity of the Project site, the Lindavista Formation is assigned a moderate paleontological sensitivity.

Santiago Formation – The Santiago Formation is exposed at the surface in the northeastern corner of the Project site, and appears to underlie the Lindavista Formation elsewhere within the Project site. The middle Eocene-age (approximately 49 to 40 million years old) Santiago Formation has been divided into three informal members in the Encinitas-Carlsbad-Vista area of San Diego County (Wilson, 1972). The SDNHM has 12 recorded fossil localities from marine deposits of members "B" and "C" of the Santiago Formation within a one-mile radius of the Project site, including a single fossil locality (SDSNH Locality 4135) located in the northeastern corner of the Project site, which, along with the majority of the nearby localities, was recovered during paleontological monitoring of construction of the Encinitas Ranch development in 1998. Taken together, the localities produced trace fossils (e.g., burrows) and fossilized impressions or remains of plants (e.g., tropical mangrove), marine invertebrates (e.g., snails, mussels, oysters, clams, tusk shells, the extinct nautilid *Cymatoceras*, starfish, and brittle stars), and marine vertebrates (e.g., rays). Both members "B" and "C" of the Santiago Formation have produced scientifically important marine and estuarine invertebrate fossil remains, as well as terrestrial vertebrate fossil remains (Deméré and Walsh, 1993). The Santiago Formation is, therefore, considered to have a high paleontological sensitivity.

Summary and Recommendations

The high paleontological sensitivity of the Santiago Formation and moderate paleontological sensitivity of the Lindavista Formation in San Diego County (Deméré and Walsh, 1993), as well as the presence of fossil collection localities in the vicinity of and within the Project site, suggests the potential for construction of the proposed Project to result in impacts to paleontological resources. Any proposed excavation activities that extend deep enough to encounter previously undisturbed deposits of these geologic units (i.e., below the depth of any previously imported artificial fill or disturbed sediments present within the Project site) have the potential to impact the paleontological resources preserved therein. If such excavation is required for Project construction, implementation of a complete paleontological resource mitigation program during ground-disturbing activities is recommended.

The fossil collection locality information contained within this paleontological record search should be considered private and is the sole property of the San Diego Natural History Museum. Any use or reprocessing of information contained within this document beyond the scope of the Fox Point Farms project is prohibited.

If you have any questions concerning these findings please feel free to contact me at 619-255-0321 or kmccomas@sdnhm.org.

Sincerely,



Katie McComas, M.S.
Paleontological Report Writer & GIS Specialist
San Diego Natural History Museum

Enc: *Figure 1: Project map*
Appendix: List of SDSNH fossil localities in the vicinity of the Project

Literature Cited

Deméré, T.A., and S.L. Walsh. 1993. Paleontological Resources, County of San Diego. Unpublished technical report prepared for the San Diego County Department of Public Works: 1–68.

Kennedy, M.P., and Tan, S.S. 2007. Geologic Map of the Oceanside 30' x 60' Quadrangle, California. California Geological Survey, Regional Geologic Map Series 1:100,000 scale, map no. 2.

San Diego Natural History Museum (SDNHM), unpublished paleontological collections data.

Wilson, K.L. 1972. Eocene and related geology of a portion of the San Luis Rey and Encinitas quadrangles, San Diego County, California. Unpublished M.A. thesis, University of California, Riverside, 135 p.

Figure 1 - Project Map, has been removed for purposes of confidentiality

Appendix: Locality List
San Diego Natural History Museum
Department of Paleontology

Locality Number	Locality Name	Location	Elevation (feet)	Geologic Unit	Era	Period	Epoch
4061	Encinitas Ranch #15	City of Encinitas, San Diego County, California	110	unnamed alluvial deposit	Cenozoic	Quaternary	Holocene
4139	Encinitas Ranch #8	City of Encinitas, San Diego County, California	313	Lindavista Formation, Clairemont Terrace	Cenozoic	Quaternary	Pleistocene
4144	Encinitas Ranch #13	City of Encinitas, San Diego County, California	313	Lindavista Formation, Clairemont Terrace	Cenozoic	Quaternary	Pleistocene
6676	Alta (formerly Bahlmann) Single Family Homes	City of Encinitas, San Diego County, California	283	Santiago Formation, member B	Cenozoic	Paleogene	middle Eocene
6677	Alta (formerly Bahlmann) Single Family Homes	City of Encinitas, San Diego County, California	360	Santiago Formation, member B	Cenozoic	Paleogene	middle Eocene
4136	Encinitas Ranch #5	City of Encinitas, San Diego County, California	265	Santiago Formation, member C, gritstone A	Cenozoic	Paleogene	Eocene
4138	Encinitas Ranch #7	City of Encinitas, San Diego County, California	295	Santiago Formation, member C, gritstone A	Cenozoic	Paleogene	Eocene
4145	Encinitas Ranch #14	City of Encinitas, San Diego County, California	265	Santiago Formation, member C, gritstone A	Cenozoic	Paleogene	Eocene
4141	Encinitas Ranch #10	City of Encinitas, San Diego County, California	310	Santiago Formation, member C, gritstone C	Cenozoic	Paleogene	Eocene
4134	Encinitas Ranch #3	City of Encinitas, San Diego County, California	270	Santiago Formation, member C, siltstone A	Cenozoic	Paleogene	Eocene
4135	Encinitas Ranch #4	City of Encinitas, San Diego County, California	270	Santiago Formation, member C, siltstone A	Cenozoic	Paleogene	Eocene
4140	Encinitas Ranch #9	City of Encinitas, San Diego County, California	285	Santiago Formation, member C, siltstone A	Cenozoic	Paleogene	Eocene
4142	Encinitas Ranch #11	City of Encinitas, San Diego County, California	270	Santiago Formation, member C, siltstone A	Cenozoic	Paleogene	Eocene
4143	Encinitas Ranch #12	City of Encinitas, San Diego County, California	285	Santiago Formation, member C, siltstone A	Cenozoic	Paleogene	Eocene
4137	Encinitas Ranch #6	City of Encinitas, San Diego County, California	290	Santiago Formation, member C, siltstone B	Cenozoic	Paleogene	Eocene
4132	Encinitas Ranch #1	City of Encinitas, San Diego County, California	268	Torrey Sandstone, siltstone member	Cenozoic	Paleogene	Eocene
4133	Encinitas Ranch #2	City of Encinitas, San Diego County, California	308	Torrey Sandstone, siltstone member	Cenozoic	Paleogene	Eocene

APPENDIX J PHASE I ENVIRONMENTAL SITE ASSESSMENT

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PHASE I ENVIRONMENTAL SITE ASSESSMENT UPDATE
FOX POINT FARMS PROJECT
1150 QUAIL GARDENS DRIVE
ENCINITAS, SAN DIEGO COUNTY, CALIFORNIA 92082

November 18, 2019
Revised March 9, 2020

Project No. 3611-SD

Prepared For:

Nolen Communities, LLC
1680 N. Coast Highway 101, Suite No. 51
Encinitas, California 92024

GEOTEK

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1.0 EXECUTIVE SUMMARY

GEOTEK, INC. (GEOTEK) has performed a Phase I Environmental Site Assessment (ESA) for the subject property: Fox Point Farms Project (the "Site"), located at 1150 Quail Gardens Drive, Encinitas, San Diego County, California. Our services were conducted in substantial conformance with the scope and limitations of the American Society of Testing and Materials (ASTM) E 1527-13, "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*", which is approved to meet the requirements of the federal All Appropriate Inquiries (AAI) standards as set forth in the Code of Federal Regulations, Title 40, Section 312 (40 CFR 312), and GEOTEK Proposal No. P0400619-SD, dated April 12, 2019 Any additions or deletions from our scope of services are discussed in the appropriate sections of this assessment.

A representative of GEOTEK conducted a Site reconnaissance on October 24, 2019. The weather was warm and the sky was clear. The irregular shaped Site is currently comprised of one parcel of land (San Diego County Assessor's Parcel Number 254-612-12-00) and encompasses a total of approximately 21 acres. The Site can be accessed from Quail Gardens Drive. The Site is bounded by Sidonia Street and a residential community development to the west, Leucadia Boulevard and a residential community development to the south, Quail Gardens Drive and a golf course to the east, and an undeveloped canyon open space to the north.

The Site is currently operated as a botanical nursery enclosed in greenhouses over a majority of the Site. Some detached structures are located in the north and observed to be open sided and closed sided storage, where accessible for observations. Additional structures were marked as restroom facilities attached to the west side of the greenhouses. A single-story residential structure located in the southwestern portion of the Site exists, that appears to have multiple additions attached to the residence over different periods of time. Electrical utilities into the Site were observed to be introduced into the Site by overhead lines supported on power poles. Upon entering the Site, the electrical power was observed to be undergrounded to areas of direct use. In general, a perimeter road encompasses the northern 2/3 of the Site with two (2) throughway roads cut through the Site in an east-west direction. The surface of the interior Site roads consists of variations of dirt, asphalt-concrete and Portland concrete cement. In addition, the Site also hosts a packing facility for bulk wholesale and distribution.

Visual evidence of potential hazardous substances and wastes were observed during our Site reconnaissance. As noticed on a placard attached to the entrance of two nursery greenhouses, an application of CHIPCO 26GT was applied as a spray to botanical plants on the date of our Site reconnaissance. No pungent or acrid odors were observed emanating from the Site.

Based on readily available historic aerial photography, the Site appears to have generally been vacant land up to 1970, with exception to the construction of the existing residence in the southwestern portion of the Site and potential field disking for agricultural use.

Based on readily available historic aerial photography, the Site appears to have been improved to its current condition and use as a botanical nursery sometime between 1970 and 2005. However, based on the client provided user questionnaire, the site has been utilized as a flower farm production since 1974. Prior to 1974 and after 1970, the user questionnaire noted the Site was utilized for the production of geranium cuttings as an outdoor farm, which may explain the disked fields observed in the 1970 aerial photo.

The current Site address of 1150 Quail Gardens Drive appears on the environmental database report obtained for this assessment. The current Site address is listed with San Diego County Site Assessment and Mitigation Program (San Diego Co. SAM); San Diego County Hazardous Materials Management Division Database (HMMD SAN DIEGO); California Environmental Protection Agency - Reporting System (CERS Haz Waste); Environmental Protection Agency - Facility Index System/Facility Registry System (FINDS); Environmental Protection Agency - Enforcement & Compliance History Information (ECHO); California Environmental Protection Agency - Facility and Manifest Data (HAZNET); Resource, and Conservation and Recovery Act (RCRA) – Non Generator. The listings with SAN DIEGO CO. SAM, HMMD, CERS, FINDS, ECHO, HAZNET, and RCRA – Non Gen, and are all related to the Site. As discussed under Section 6 of this report, these listings do not represent an environmental concern to the Site.

There are 14 facilities listed on the database report within the various search distances specified by ASTM E 1527-13. Due to their status listings, distances, and/or locations (hydro-geologically down-or cross-gradient), it is our opinion that these facilities do not represent an environmental concern to the Site.

This Phase I Environmental Site Assessment has revealed evidence of a recognized environmental condition and an environmental concern in connection with the subject Site.

A trash compactor on a concrete pad located in the northern portion of the Site was leaking during our site visit, as evident by staining on the equipment and surrounding soil. Sampling and testing of this area for impacted soil surround the pad is recommended. As an alternative, the impacted soils around the concrete pad can be excavated and disposed to a hazardous facility.

The Site is an active botanical nursery. Environmental impacts related to herbicides, pesticides, and fertilizer are considered to be a likely contaminant impacting the Site. Housekeeping practices were found to be less than optimal, further indicating potential for mis-handling of these materials. A combination of random and focused field sampling and laboratory testing program is recommended to identify or dismiss concerns related to past and current agricultural and botanical production at the Site.

In addition, the existing residential structure located in the southwestern portion of the Site and the existing covered botanical nursery greenhouses may contain asbestos related construction materials and lead based paint. Prior to demolition, an asbestos and lead material survey must be performed to evaluate potential hazards with demolition and disposal.

This executive summary does not contain all the information that is found in the full report. The report should be read in its entirety to obtain a more complete understanding of the information provided and to aid in any decisions made or actions taken based on this information.

2.0 INTRODUCTION

GEOTEK, INC. (GEOTEK) has performed a Phase I Environmental Site Assessment (ESA) for the Fox Point Farms project (the "Site"), located at 1150 Quail Gardens Drive, Encinitas, San Diego County, California.

2.1 PURPOSE

The purpose of this Phase I ESA was to identify and evaluate actual and potential environmental conditions involving the subject Site. It was not the purpose of this assessment to determine the degree or extent of contamination, if any, but rather the potential for contamination.

2.2 SCOPE OF WORK

The Phase I ESA is a general characterization of environmental concerns based on reasonably ascertainable information and observations. GEOTEK performed the Phase I ESA in substantial accordance with ASTM E 1527-13. The following services were provided for the assessment:

- A reconnaissance of the Site and surrounding properties to visually assess current utilization and indications of potential surface contamination. This was accomplished by driving the Site boundaries, and then traversing the Site until the entire Site had been surveyed.

- A reconnaissance of the surrounding area for approximately one-half mile was conducted, without entering the properties, making observations concerning property uses, conditions, and housekeeping.

- A review of the geologic and hydro-geologic settings was conducted using reasonably ascertainable public records and documents.

- An environmental database report was obtained from a data service provider. This database report compiles and locates documented "hazardous waste" facilities within specific minimum search distances as defined by ASTM E 1527-13. If necessary, additional information on identified facilities was gathered by a file review at the appropriate federal, state, local, and/or tribal regulatory agency.

- A review of reasonably ascertainable historical records (including aerial photographs, topographic maps, building records, and city directories) was conducted to assess the

historical land utilization and indications of potential contamination or sources of contamination for the Site.

- This report was prepared, which relates the findings of this study and presents our conclusions and recommendations.

Specific items not included in this Scope of Services are soil analysis, water analysis, asbestos containing materials analysis, radon analysis, lead-based paint analysis, lead in drinking water, wetlands, regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, vapor intrusion testing, high voltage power lines, and other items not within the scope of ASTM E 1527-13.

2.3 SIGNIFICANT ASSUMPTIONS

Specific assumptions by GEOTEK for this assessment include:

- GEOTEK had permission to access the Site grounds;
- The client has provided GEOTEK with available geotechnical or environmental reports for the Site;
- The client has provided GEOTEK with known current or historic uses of hazardous materials at the Site, or with other specialized knowledge of the environmental history of the Site and surrounding area;
- The client is not the sole and absolute source of information;
- Seller has provided proper and complete access to their knowledge, both written and verbal, and GEOTEK can rely on the information.

2.4 LIMITATIONS AND EXCEPTIONS

GEOTEK conducted a Phase I Environmental Site Assessment in substantial accordance with ASTM E 1527-13 and as authorized by Nolen Communities, LLC. This study does not include sampling of soil, groundwater and/or the debris on-site for environmental testing. This report is intended for the use of Nolen Communities, LLC. The contents should not be relied upon by any party other than the aforementioned without the express written consent of GEOTEK.

The findings, conclusions, and recommendations made in this report are based on the information that was made available to GEOTEK, in most instances from public records. The information is relevant to the date of our site work and should not be relied on to represent conditions at any later date. The opinions and conclusions expressed herein are based on information obtained during our assessment and on our experience and current standards of technical practice. GEOTEK makes no other warranties, either express or implied, concerning the completeness of the data furnished to us. GEOTEK cannot be responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time our assessment was undertaken. GEOTEK is not responsible, nor liable for work, testing or recommendations performed or provided by others. This Phase I Environmental Site Assessment is not and should not be construed as a warranty or guarantee about the presence or absence of environmental hazards or contaminants, which may affect the subject site. Facts, conditions, and acceptable risk factors change with time; accordingly, this report should be viewed within this context.

Specific limitations to the scope of ASTM E 1527-13 due to contract limitations, availability of resources, and/or encountered Site conditions are discussed in the appropriate section(s) of this report.

2.5 SPECIAL TERMS AND CONDITIONS

This assessment report is presented as fulfilling the standard requirements of most financial institutions, governmental regulatory agencies, ASTM, and generally accepted industry standards and practices. Please refer to GEOTEK Proposal No. P0400619-SD for complete terms and conditions for this assessment.

2.6 RELIANCE

This assessment has been prepared for the exclusive use and may be relied upon by Nolen Communities, LLC and their successors and assignees. Third party reliance letters may be issued upon request and upon the payment of the, then current, fee for such letters. All third parties relying on this report, by such reliance, agree to be bound by the General Conditions and Limitations agreed to Nolen Communities, LLC. No reliance by any party is permitted without such agreement, regardless of the content of the reliance letter itself.

3.0 DESCRIPTION OF SITE AND SURROUNDING AREA

The objective of describing the Site and surrounding area is to document current conditions as observed and to obtain information which would indicate the likelihood of a recognized environmental condition in connection with the Site. A representative of GEOTEK conducted a Site reconnaissance on October 24, 2019. The weather was warm and the sky was clear. The Site can generally be accessed from Quail Gardens Drive.

3.1 SITE LOCATION AND LEGAL DESCRIPTION

The current Site address is 1150 Quail Gardens Drive, City of Encinitas, San Diego County, California. It is located northwest of the intersection of Quail Gardens Drive and Leucadia Boulevard. According to the San Diego County Office of the Assessor, the Site encompasses the entirety of Assessor's Parcel Number (APN) 254-612-12-00 (21 acres). According to the U.S. Geological Survey (USGS) Encinitas Quadrangle topographic map sheet (7.5-minute series), the Site is located in Section 3, Township 13 South, Range 4 West, San Bernardino Principal Meridian (see Figure 1 in Appendix A and documents in Appendix B).

3.2 SITE AND VICINITY GENERAL CHARACTERISTICS

The Site is currently developed and utilized as a botanical nursery. The Site is in an area largely characterized by residential development.

3.3 CURRENT PROPERTY USE

The Site is currently developed and utilized as a botanical nursery.

3.4 SITE IMPROVEMENTS

The Site is currently operated as a botanical nursery enclosed in greenhouses over a majority of the Site. Some detached structures are located in the north and observed to be open sided and closed sided storage, where accessible for observations. Additional structures were marked as restroom facilities attached to the west side of the greenhouses. A single-story residential structure located in the southwestern portion of the Site exists, that appears to have multiple additions attached to the residence over different periods of time. Electrical utilities into the Site were observed to be introduced into the Site by overhead lines supported on power poles. Upon entering the Site, the electrical power was observed to be undergrounded to areas of direct use. In general, a perimeter road encompasses the northern 2/3 of the Site with two (2) throughway roads cut through the Site in an east-west direction. The surface of

the interior Site roads consist of variations of dirt, asphalt-concrete and Portland concrete cement. In addition, the Site also hosts a packing facility for bulk wholesale and distribution. Photographs of the Site are included in Appendix C.

3.4.1 HAZARDOUS SUBSTANCES

Visual evidence of hazardous substances was observed during our site visit, consisting of, a notice placard attached to the entrance of two nursery greenhouses that an application of CHIPCO 26GT was/being spray-applied to botanical plants on the date of our Site reconnaissance. A placard notice of Nitric Acid was displayed on the outside of a storage shed. Hydrochloros acid was observed in one of the buildings. The southeast portion of the Site is currently utilized as an outdoor fertilizer storage yard. No pungent or acrid odors were observed emanating from the Site.

3.4.2 STORAGE TANKS

GEOTEK observed several aboveground storage tanks, ranging in size from approximately 500-galons to over 10,000-gallons. The tanks were either not labeled or labeled as water, diesel, or nitric acid, and inferred to be constructed of steel and painted, wrapped in a protective coating or thermally insulated. The diesel tank was within a secondary containment to prevent spills or leaks from impacting the soil.

Underground storage tanks (such as cisterns or points of surface water collection) were observed around the perimeter on the Site. Our assumed use is based on surface drainage conveyance systems (trench grate drains and trench patches between roof downspouts and an adjacent cistern) connecting to the underground storage tanks.

3.4.3 POLY-CHLORINATED BIPHENYLS (PCBS)

GEOTEK observed a leaking trash compactor located in the northern portion of the Site. The leak appears to have impacted a significant volume of soil near the transformer. This represents a recognized environmental condition to the Site, in the form of impact from PCBs as well as petroleum hydrocarbons.

GEOTEK did not observe other suspect pieces of equipment (elevators, hydraulic lift mechanisms, trash compactors, etc.) which may contain PCBs on the Site.

3.4.4 CONTROLLED SUBSTANCES

GEOTEK consulted the U.S. Drug Enforcement Agency (DEA) website to cross-check the Site address and cross streets against published facilities subject to DEA enforcement. The Site did not appear on the list of published facilities, based on address and cross-streets. A copy of the DEA printout is included in Appendix B.

GEOTEK did not observe evidence of illegal or controlled substances being used or manufactured at the Site.

3.4.5 INDICATIONS OF SOLID WASTE DISPOSAL

GEOTEK observed several waste receptacles on the Site. Waste disposal for the Site and Site area is provided by Edco.

3.4.6 UTILITY SUPPLY

GeoTek observed utility services at the Site. Water service for the Site and area is provided by San Dieguito Water District. Sewer wastewater services for the Site and area is provided by Leucadia Wastewater District. Electric and natural gas services for the Site and area are provided by San Diego Gas and Electric.

3.4.7 DRAINAGE

Natural drainage at the Site is generally interpreted to be toward the south-southwest, conforming to the natural topography in the area. Ponded water, other than in concrete lined boxes or cisterns, was not observed during our Site reconnaissance. However, water was observed to be flowing in concrete culverts to a drainage collection system surrounding the perimeter of the Site. This flowing water has the potential to contain waste chemicals washed off of the ground surface. This represents an environmental concern to the Site.

The Site has a permitted recycling water program authorized for use. San Diego County department of Environmental Health has issued permit no. LREC_2987_01-05-2010. In general, the permit notes the system to contain recycled water tanks, potable water tanks, mixing tanks, meters, injectors, and a layout for different water points of use across the Site. A copy of the permit is included in Appendix B.

3.4.8 Other Conditions of Concern

The structures on Site appear to have been constructed decades ago in a time when asbestos related construction products were prevalent. Also, the southwest portion of the site was observed to be a staging area for fertilizer.

Although subjective, housekeeping practices at the Site were mixed, with some areas observing good practices and others not utilizing good practices. Overall, the housekeeping was found to be less than satisfactory for a facility that utilizes the variety and quantities of chemical products in its operations.

3.4.9 Interviews

GeoTek interviewed the following individual while performing this assessment, in the form of completing a *User Questionnaire*:

- Mr. Robert Echter (the current Site owner) completed a User Questionnaire.

Information from this interview is incorporated into the appropriate sections of this report.

3.5 Current Adjoining Property Use

The adjoining Site area is largely characterized by residential development to the west and south, open space into a descending canyon to the north, and a golf course to the east.

4.0 CLIENT PROVIDED INFORMATION

As a form of interview, the current Site owner completed a "User Questionnaire" for the Site in accordance with ASTM E 1527-13. A copy of the completed questionnaire is included in Appendix B.

4.1 ENVIRONMENTAL CLEAN UP LIENS

Mr. Robert Echter is not aware of any environmental clean-up liens at the Site.

4.2 ACTIVITY AND USE LIMITATIONS

Mr. Robert Echter is not aware of any activity use limitations at the Site.

4.3 SPECIALIZED KNOWLEDGE

Mr. Robert Echter is aware of specialized knowledge of the Site but not nearby properties. The Site has been a flower farm production by Fox Point Farms since 1974. Prior to 1974, the Site was used for the production of geranium cuttings as an outdoor farm.

4.4 PURCHASE PRICE

Mr. Robert Echter believes the purchase price being paid for the Site reflects fair market value.

4.5 COMMONLY KNOWN INFORMATION

Mr. Robert Echter states that he has knowledge of past uses of the property as a geranium cuttings facility. Mr. Robert Echter is aware pesticides utilized over many years for the Site. However, Mr. Robert Echter is not aware of any chemical spills at the Site.

4.6 OBVIOUS INDICATORS OF CONTAMINATION

Mr. Robert Echter is aware of two pesticide mixing tanks, each 100 gallons, and may likely have an environmental impact at the Site. It should be noted that the pesticide mixing tanks were located within a concrete lined basin, with basin walls approximately 12 inches above the concrete bottom and appeared to be poured in a monolithic placement.

4.7 Owner, Property Manager and Occupant Information

Robert and Leslie Echter currently own and manage the Site.

4.8 Reason for Performing Phase I ESA

This Phase I ESA was performed at the request of Nolen Communities, LLC as part of their due diligence for possible future improvements on the Site and in order to qualify for one of the Landowner Liability Protections offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2002.

4.9 Other User Provided Information

GeoTek was not provided with additional information, such as, a prior phase I environmental site assessment.

5.0 PROPERTY PHYSICAL SETTING

Surface and subsurface environments are of interest because they control the movement of water-born contaminants, which could be transported to and from the subject Site. GEOTEK reviewed information regarding the physical setting of the subject Site and immediately surrounding area.

5.1 REGIONAL GEOLOGY

The property is situated in the Peninsular Ranges geomorphic province. The Peninsular Ranges province is one of the largest geomorphic units in western North America. Basically, it extends from the point of contact with the Transverse Ranges geomorphic province, southerly to the tip of Baja California. This province varies in width from about 30 to 100 miles. It is bounded on the west by the Pacific Ocean, on the south by the Gulf of California and on the east by the Colorado Desert Province.

The Peninsular Ranges are essentially a series of northwest-southeast oriented fault blocks. Several major fault zones are found in this province. The Elsinore Fault zone and the San Jacinto Fault zone trend northwest-southeast and are found near the middle of the province. The San Andreas Fault zone borders the northeasterly margin of the province.

5.2 LOCAL GEOLOGIC SETTING AND TOPOGRAPHY

The Site and Site area are understood to be underlain by Old Paralic Deposits. Additional data regarding soil survey information for the Site and Site area is also included in Appendix B.

The Site and Site area can be considered as relatively flat to gently sloping with incised canyon terrain typical of regional wave cut terrace platforms Based on the USGS topographic map for the area and other documents reviewed for this report, the elevation of the subject Site ranges from approximately 315 to 320 feet above mean sea level.

5.3 VICINITY SURFACE DRAINAGE

Natural drainage at the Site is interpreted to be dominantly directed toward the south-southwest, conforming to the natural topography in the area. Storm water runoff does not appear to drain towards the Site from the adjacent properties due to existing streets and/or improvements.

According to the Federal Emergency Management Agency (FEMA), the Site is not located within a 100-year flood zone (Community-Panel Number 06073C1035G, dated May 16, 2012).

5.4 HYDROGEOLOGY

According to a review of historical groundwater data (California Department of Water Resources and California State Water Resources Control Board groundwater well data [http://wdl.water.ca.gov and http://geotracker.waterboards.ca.gov]) no historical groundwater information is available. A preliminary geotechnical exploration program is currently being performed and consisted of six geotechnical borings. Standing groundwater was not observed during our exploration program, however drill cuttings suggested that between 10 and 15 feet below the ground surface, a saturated zone existed at the time of our drilling. Located southeast of the Site, a pond associated with the golf course exists with an approximate water elevation of 285 feet.

6.0 ENVIRONMENTAL REGULATORY RECORDS REVIEW

The records review is conducted to help identify known recognized environmental conditions at the Site and/or on adjacent or nearby properties which may have impacted the subject Site.

6.1 ENVIRONMENTAL DATABASE RECORDS SEARCH

GEOTEK obtained and reviewed an environmental database report of the federal and state environmental records specified by ASTM E 1527-13. The database report was provided by Environmental Data Resources, Inc. (EDR) of Shelton, Connecticut. Additionally, orphan or un-mappable sites listed by EDR were reviewed for the approximate minimum search distances noted and included in our discussion, if applicable. Refer to Appendix D for a copy of the database report.

ENVIRONMENTAL DATABASE	MINIMUM SEARCH DISTANCE	SITE	ADJACENT	TOTAL LISTED
U.S. Environmental Protection Agency (EPA) - National Priorities List (NPL), including delisted NPL	1.0 Mile	No	0	0
EPA – Superfund Enterprise Management System (SEMS), including archived sites (formerly CERCLIS)	0.5 Mile	No	0	0
EPA – Resource Conservation and Recovery Act (RCRA), Corrective Action Facilities (CORRACTS)	1.0 Mile	No	0	0
EPA – RCRA, Transportation, Storage, and Disposal facilities (TSD)	0.5 Mile	No	0	0
EPA - RCRA Generators	Site and Adjacent	No	0	0
EPA – Emergency Response Notification System (ERNS)	Site	No	N/A	0
Federal institutional control/engineering control registries	0.5 Mile	No	0	0
California Environmental Protection Agency (CEPA) – State Response Sites (Response, formerly Annual Work Plan and Bond Expenditure Plan)	1.0 Mile	No	0	0

ENVIRONMENTAL DATABASE	MINIMUM SEARCH DISTANCE	SITE	ADJACENT	TOTAL LISTED
CEPA – EnviroStor Database (formerly CALSITES)	0.5 Mile	No	0	2
CEPA – CHMIRS - California Hazardous Materials Information Reporting System	Site	No	No	0
CEPA - Solid Waste Fill/Landfill (SWF/LF), Solid Waste Assessment Test (SWAT)/Waste Management Unit Database System (WMUDS) and Recycling Facilities (SWRCY)	0.5 Mile	No	0	0
CEPA – Leaking Underground Storage Tanks (LUST)	0.5 Mile	No	0	4
CEPA – Underground Storage Tanks (UST), including historic USTs	Site and Adjacent	No	0	0
CEPA – Spills, Leaks, Investigations & Cleanup Cost Recovery Listing (SLIC)	0.5 Mile	No	3	3
State institutional control/engineering control registries	Site	No	N/A	0
Local and/or Tribal databases	Up To 1.0 Mile	No	0	0
Drycleaners	0.25 Mile	No	0	0
Other databases	Up to 1.0 Mile	6	0	8
Unmappable facilities	Up to 1.0 Mile	No	0	0

N/A – Not Applicable

6.2 Discussion of Regulatory Records

6.2.1 National Priority List

The National Priority List (NPL) is the EPA's list of confirmed or proposed Superfund sites. Our review of this data includes sites which have been delisted from the NPL. The NPL is searched for a 1.0-mile distance.

The Site does not appear on the NPL. There are no facilities on the NPL within 1.0-mile of the Site.

6.2.2 SUPERFUND ENTERPRISE MANAGEMENT SYSTEM

The Superfund Enterprise Management System (SEMS, formerly CERCLIS) is a compilation of sites that the EPA has investigated or is currently investigating for a release or threatened release of hazardous substances. Our review of SEMS sites includes archive (no further remedial action planned) facilities. The SEMS list is searched for a 0.5-mile distance.

The Site does not appear on the SEMS list. There are no facilities on the SEMS list within 0.5-mile of the Site.

6.2.3 RESOURCE CONSERVATION AND RECOVERY ACT

The Resource Conservation and Recovery Act compile selective information on facilities which generate, transport, store, treat and or dispose of hazardous waste. RCRA facilities can be listed on one of three databases:

- *Corrective Action Facilities (CORRACTS)* are facilities undergoing corrective action. A corrective action order is issued pursuant to RCRA Section 3008(h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. The CORRACTS list is searched for a 1.0-mile distance.

  The Site does not appear on the CORRACTS list. There are no facilities on the CORRACTS list within 1.0-mile of the Site.

- *Transportation, Storage, and Disposal Facilities (TSD)* includes facilities that transport, store or dispose of hazardous waste and are not listed on the RCRA Generators list. The TSD is searched for a 0.5-mile distance.

  The Site does not appear on the RCRA TSD list. There are no facilities on the RCRA TSD list within 0.5-mile of the Site.

- *Generators List* identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Generators database is a compilation by the EPA of reporting facilities that generate hazardous waste. The RCRA generators list is searched for the Site and adjacent properties.

  The Site does not appear on the RCRA Generators list. There are no facilities listed as a RCRA Generator within 0.25 mile of the Site.

6.2.4 Emergency Response Notification System

The Emergency Response Notification System (ERNS) is a national database used to collect information on reported releases of oil or hazardous substances.

The ERNS list is searched for the Site. The Site does not appear on the ERNS list.

6.2.5 Federal Institutional Control/Engineering Control Registries

The EPA maintains three (3) databases which list sites that have institutional and/or engineering controls in place as part of their operations. These databases are searched for a 0.5-mile distance.

The Site does not appear on these databases. There are no facilities on these databases within 0.5-mile of the Site.

6.2.6 State Response Sites

The State Response Sites (RESPONSE) records are the state equivalent to the federal National Priorities List (NPL) database. The RESPONSE is searched for a 1.0-mile distance.

The Site does not appear on the on the RESPONSE. There are no RESPONSE facilities listed within a 1.0-mile distance of the Site.

6.2.7 EnviroStor Database

The EnviroStor Database (EnviroStor, formerly CALSITES) records are the state equivalent to the federal SEMS database. EnviroStor is searched for a 1.0-mile distance.

The Site does not appear on the EnviroStor database. However, there are 2 EnviroStor facilities within 1.0 mile of the Site.

499 Quail Gardens Drive

The first facility is approximately 0.481 miles to the south of the Site and is known as the Quail Gardens Agricultural Education Facility, located at 499 Quail Gardens Drive, Encinitas, CA 92024. The approximately 10-acre site is currently vacant, undeveloped land, surrounded by residential homes. The site has been historically utilized for agricultural purposes, indicating the

potential for pesticide application. Elevated levels of methane detected. (old poinsettia farm). District dropped site.

Northeast Corner of Quail Gardens Drive and Paseo De Las Ver

The second facility is approximately 0.563 miles to the south of the Site and is known as the Proposed Encinitas School Site, located at the northeast corner of Quail Gardens Drive and Paseo De Las Ver, Encinitas, CA 92024. The Site has been historically used for agricultural purposes since at least 1939 to about 1997. The Site is vacant undeveloped land bordered by single family residences to the north and east, a golf course to the northeast, a playground to the southeast, and Quail Gardens Road to the west. The Site was graded in 2002 as part of the Encinitas Ranch Development; the slope on the east side of the Site was cut and the west side was filled.

DTSC concurred with the conclusion of the PEA that further environmental investigation of the Site is not required and approved the PEA on 01/12/2010. However, if the school will be expanded to include classroom structures on the southern portion of the site in the future, additional investigation/mitigation measures for methane may be necessary in consultation with DTSC.

6.2.8 California Hazardous Material Incident Report System

The California Hazardous Material Incident Report Systems (CHMIRS) is a state database used to collect information on reported hazardous materials incidents (accidental leaks and spills). The CHMIRS list is searched for a 0.25-mile distance.

The Site does not appear on the CHMIRS list. There are no CHMIRS facilities located within 0.25 mile of the Site.

6.2.9 Solid Waste Facilities List

The Solid Waste Fill/Landfill (SWF/LF), Waste Management Unit Database System (WMUDS)/Solid Waste Assessment Test (SWAT), and Solid Waste Recycling Facilities (SWRCY) databases includes information pertaining to closed and open solid waste facilities operating in the state of California. The SWF/LF, WMUDS/SWAT and SWRCY databases are searched for a 0.5-mile distance.

The Site does not appear on the SWF/LF, WMUDS/SWAT or SWRCY lists.

There are no facilities on the SWRCY, WMUDS/SWAT or SWRCY lists within 0.5-mile of the Site.

6.2.10 LEAKING UNDERGROUND STORAGE TANKS LIST

The California Leaking Underground Storage Tanks (LUST) list is a compilation of petroleum storage tank sites that have reported a release. The LUST list is searched for a 0.5-mile distance.

The Site is not listed on the LUST list.

There are four (4) facilities listed on the LUST list within 0.5-mile of the Site. The first facility is listed as Bahlmann & Brown., located at 645 Saxony Road. The facility is listed as being located approximately 0.409 mile southwest of the Site and at an approximate elevation of 215 feet above msl. The facility status is listed as "completed-case closed."

The second facility is listed as Gaylord Bahlmann., located at 645 Saxony Road. The facility is listed as being located approximately 0.409 mile southwest of the Site and at an approximate elevation of 215 feet above msl. The facility status is listed as "completed-case closed." This facility appears to be the same as the first facility listed above.

The third facility is listed as Private Residence, address is not listed. The facility is listed as being located approximately 0.043 mile northeast of the Site and at an approximate elevation of 227 feet above msl. The facility status is listed as "open-inactive."

The fourth facility is listed as Specimen House, located at 782 Leucadia. The facility is listed as being located approximately 0.426 mile west of the Site and at an approximate elevation of 225 feet above msl. The facility status is listed as "open-site assessment."

Due to the status listings and the elevation in reference to the Site, it is our opinion that these facilities do not represent an environmental concern to the Site.

6.2.11 Underground Storage Tanks List

The California Underground Storage Tank (UST) list is a compilation of petroleum storage tank sites that are registered with the state of California. The UST list is searched for the Site and adjacent properties.

The Site did not appear on the UST list.

The Site did not appear on the HIST UST list.

None of the adjacent properties appear on the UST or HIST UST lists.

6.2.12 Spills, Leaks, Investigation and Cleanup Cost Recovery Listing (SLIC)

The SLIC database is compiled by the CEPA California Regional Water Quality Control Board, San Ana Region. It is designed to protect and restore water quality from spills, leaks, and similar discharges. The SLIC is searched for a 0.5-mile distance.

The Site does not appear on the SLIC.

There are three (3) SLIC facilities listed within 0.5-mile of the Site.

An adjacent private residence located at 1251 Quail Gardens Drive, at an approximate elevation of 227 feet above msl, is listed on SLIC. The facility status is listed as "open-inactive." During preconstruction design and permitting stages of the residential properties, environmental sampling was performed by Leighton and Associates, Inc. in 1997 on discolored soils which was placed on the property at a depth of 15 feet below ground as a waste sludge from a sewage treatment plant during road widening of Quail Gardens Drive. Based on the depth of the soil and laboratory results the San Diego Regional Water Quality Control Board (SDWQCB) allowed the soils to remain in-place with a deed restriction to the property to exclude residential structures shall reside in the area of non-standard grading unless certified by a geotechnical engineer In September 2008, Leighton carried out a soil vapor survey based on an approved workplan by the SDRWQB. Conclusions of the methane survey resulted in providing a statement that the proposed planned development was feasible provided recommendations presented in the report were executed during the design and construction phases of the project.

The second facility is listed as Gaylord Bahlmann., located at 645 Saxony Road. The facility is listed as being located approximately 0.409 mile southwest of the Site and at an approximate elevation of 215 feet above msl. The facility status is listed as "completed-case closed."

The third facility is listed as Specimen House, located at 782 Leucadia. The facility is listed as being located approximately 0.426 mile west of the Site and at an approximate elevation of 225 feet above msl. The facility status is listed as "open-site assessment."

Due to the status listings and the elevation in reference to the Site, it is our opinion that these facilities do not represent an environmental concern to the Site.

6.2.13 State Institutional Control/Engineering Control Registries

The State of California maintains institutional and engineering control databases or registries. This lists sites with engineering or institutional controls in place. Institutional controls include administrative measures intended to prevent exposure to contaminants remaining on site. Engineering controls include various forms of caps, building foundations, liners, and treatment methods. The State Institutional Control/Engineering Control Registries is searched for the Site.

The subject Site does not appear on the State Institutional Control/Engineering Control Registries.

6.2.14 Tribal Databases

Tribal governments are under the jurisdiction of the EPA for environmental concerns. Currently, the EPA Region 9 publishes LUST and UST information for tribes in Arizona, California, Hawaii, Nevada, and the Pacific Territories. The LUST database is searched for 0.5 mile, and the UST database is searched for 0.25 mile.

The Site does not appear on the Tribal LUST or UST databases. No facilities were identified on the Tribal LUST or UST databases within 0.5 mile of the Site.

6.2.15 Other Databases

EDR compiles information from multiple federal, state, local, and proprietary databases. Most are secondary or tertiary or redundant. Facilities compiled on these other databases are evaluated based on the severity of the listing, distance, and location.

The Site appears on the environmental database report obtained for this assessment. The current Site address is listed with San Diego County Hazardous Materials Management Division Database (HMMD SAN DIEGO); California Regional Water Quality Control Board - Spills, Leaks, Investigation and Cleanup Cost Recovery Listing (SLIC); California Environmental Protection Agency - Reporting System (CERS Haz Waste); Department of Toxic Substances and Controls and San Diego Regional Water Quality Control Board - Deeds Restrictions Listing (DEEDS); Environmental Protection Agency - Facility Index System/Facility Registry System (FINDS); Environmental Protection Agency - Enforcement & Compliance History Information (ECHO); California Environmental Protection Agency - Facility and Manifest Data (HAZNET); Resource, Conservation and Recovery Act (RCRA) – Non Generator; California Environmental Protection Agency - California Environmental Reporting System (CERS). The listings with CERS, HAZNET, ECHO, FINDS, RCRA – Non Gen, and HMMD are all related to the Site. These listings, due to the proximity, elevation, and status of the sites do not represent an environmental concern to the Site.

The adjacent property northeast to the Site is listed on the database report on the SLIC database and is classified as "open-inactive" status. However, this listing does not represent an environmental concern to the Site.

No other facilities, other than those listed above, are reported on these other databases for this assessment.

6.2.16 DRY CLEANERS

The DRYCLEANERS list is compiled and provided by EDR. The DRYCLEANER database is searched for a 0.25-mile distance.

The Site does not appear on the DRYCLEANER list. There are no DRYCLEANER facilities listed within 0.25-mile of the Site.

6.2.17 VAPOR ENCROACHMENT SCREEN

The purpose of a Vapor Encroachment Screen (VES) is to identify, to the extent feasible, if a vapor encroachment condition exists at the Site.

A Vapor Encroachment Screen Report was generated for the Site and Site area utilizing EDR's Vapor Encroachment Worksheet (see Appendix B). It was determined that there are no historical dry cleaners or auto stations within 600 feet and/or up gradient from the Site.

A soil vapor survey was performed for the adjacent address of 1251 Quail Gardens Drive. The intent of the survey was to lift a deed restriction on the property for the redevelopment of the project to its current state. The property at 1251 Quail Gardens Drive was documented to have been a dump site for high organic matter from a sewage utility facility during grading of the site. A soil vapor survey was performed by Leighton & Associates, Inc and reported in 2010. The results of the report concluded that methane related impacts are not a construction based concerne, however, provided building construction mitigation recommendations for slab-on-grade foundation construction. In addition, fills associated with a potential soil vapor concern appear to be only associated with property within 1251 Quail Gardens Drive. In general, no significant fills (greater than 2-3 feet) associate with the Site are inferred. Based on a review of the readily available reports, documents, topographic and aerial photographs.

It was determined that a vapor encroachment condition (VEC) does not likely exist at the Site. The Vapor Encroachment Screen report is included in Appendix B.

6.2.18 UNMAPPABLE FACILITIES

GEOTEK reviewed the listing of "orphan" or unmappable facilities in the database report. There are two (2) unmapped facilities in the report. Based on the facility listings, these facilities do not represent an environmental concern to the Site.

6.3 LOCAL REGULATORY AGENCY RECORDS

GEOTEK contacted the County of San Diego Sherriff and Fire Departments regarding underground or above ground storage tanks, hazardous material permits or business plans, emergency responses, spills, inspections, or other information of an environmental or hazardous nature.

Neither of these agencies had any information for the Site.

7.0 SITE AND SURROUNDING AREA HISTORY

In order to construct the history of the Site and the surrounding area, GEOTEK reviewed reasonably ascertainable public documents, including aerial photographs, topographic maps, building records, city directories, fire insurance maps, and county assessor history records.

7.1 HISTORICAL SITE USAGE

7.1.1 AERIAL PHOTOGRAPH REVIEW

GEOTEK reviewed aerial photographs dated 1939, 1946, 1953, 1964, 1966, 1970, 1979, 1985, 1990, 1994, 2005, 2009, 2012, and 2016 (see Appendix B).

The Site appears to be vacant and undeveloped land in the 1939 aerial photograph, with some possible indications of crop disking for agricultural use.

The Site appears to be vacant and undeveloped land in the 1946 and 1953 aerial photographs with more clear indications of crop disking for agricultural use.

The existing residential structure located in the southwestern corner of the Site can be observed in the 1964, 1966, and 1970 aerial photographs along with crop disking for agricultural use.

Covered nursery structures in the northern $^{2}/_{3}$ portion of the Site can be observed in the 1979, 1985, 1990, and 1994 aerial photographs along with unknown improvements north of the current existing residential structure.

Covered nursery structures in the southern 1/3 portion, east of the residential structure, can be observed in the 2005 aerial photograph. Unknown improvements as described above are no longer visible.

Covered nursery construction as currently constructed can be observed in the 2009, 2012, and 2016 aerial photographs.

A 2016 aerial photograph is utilized for Figure 2 (Appendix A).

7.1.2 TOPOGRAPHIC MAP REVIEW

GEOTEK reviewed the United States Geological Survey, Encinitas Quadrangle (7.5-minute series), dated 1948, 1949, 1968, 1975, 1997, and 2012; the Oceanside Quadrangle (15-minute series), dated 1893, 1898, 1901, and 1947; (see Appendix B).

The Site appears to be vacant land on the 1893, 1898, 1901, 1947, 1948, 1949, and 1968 topographic map sheets.

A structure for the nurseries can be observed on the 1975 and 1997 but not in the 2012 topographic map sheets. The remaining Site area appears to be vacant land.

The 2012 maps show little detail other than streets in the vicinity. A 2012 topographic map sheet is utilized for Figure 1 (Appendix A).

7.1.3 BUILDING DEPARTMENT RECORDS

Building department records were reviewed as part of this assessment as obtained from and provided by EDR, and included in Appendix B. Building permits associated with the Site were found to be applied in 1998, 200, 2001, and 2017. Property adjoining the Site applied foe building permits in 2002 and 2017.

Site Related Building Permits:
On November 13, 1998 a Site building permit related to mechanical-heating/air condition was granted. The contractor of record was not listed.

On October 15, 2001 a Site building permit related to an electric back-up generator was granted. The contractor of record was Turner Electric.

On October 25, 2001 a Site building permit related to plumbing-gas installation/repair was granted. The contractor of record was Turner Electric.

On October 26, 2001 a Site building permit related to electric-construction temporary power was granted. The contractor of record was Power Plus! Temporary Utility.

On August 2, 2017 a Site building permit related to the demolition/removal of a cellular improvement was granted. The contractor of record was Solex Contracting Inc.

Adjoining Site Related Building Permits:
On June 24, 2002 an adjoining property permit related to electrical service/relocation/new was granted. The contractor of record was Terra Firma Landscape.

On August 4, 2017 an adjoining property permit related to electrical power/DSL cable power supply in Right of Way was granted. The contractor of record was Zed Electric.

7.1.4 City Directory Review

GeoTek obtained The EDR – City Directory Image Report, as obtained from and provided by EDR, and included in Appendix B. No images were provided for the years reported.

7.1.5 Sanborn Map Review

Sanborn Fire Insurance Maps for the parcel were requested from EDR-Sanborn, which owns and maintains the largest and most complete collection of the maps. Source sheets were not available for the Site. The Sanborn Map Report is included in Appendix B.

7.1.6 Chain of Title

GeoTek has not received Chain-of-Title documents for the Site.

7.2 Historical Immediately Surrounding Property Usage

7.2.1 Aerial Photograph Review

GeoTek reviewed aerial photographs dated 1939, 1946, 1953, 1964, 1966, 1970, 1979, 1985, 1990, 1994, 2005, 2009, 2012, and 2016 (see Appendix B).

The surrounding properties appear to be vacant and undeveloped land with exception to the Leucadia Blvd alignment as a dirt road in the 1939 aerial photograph with some possible indications of crop disking for agricultural use.

The adjoining properties appear to be vacant and undeveloped land in the 1946, and 1953 aerial photographs with more clear indications of crop disking for agricultural use. The area southwest of the Site can be observed to be improved with minor dirt roads as a rough grid pattern.

The adjoining properties appear to be vacant and undeveloped land in the 1964, 1966. and 1970 aerial photographs with clear indications of agricultural use. The area southwest of the site can be observed to be improved with residential structures and the water reservoir associated with the existing golf course to the east of the Site can be observed.

The adjoining properties to the west can be observed to be developed as residential construction and property to the east can be observed to have an increased agricultural use in the 1979, 1985, 1990, and 1994 aerial photographs. Widening of Leucadia Blvd to the southwest of the Site can also be observed.

The adjoining properties to the south of Leucadia Blvd are improved with residential structures, Leucadia Blvd is widened, and the golf course to the southeast and east of the Site can be observed in the 2005, 2009, 2012, and 2016 aerial photographs.

7.2.2 Topographic Map Review

GeoTek reviewed the United States Geological Survey, Encinitas Quadrangle (7.5-minute series), dated 1948, 1949, 1968, 1975, 1997, and 2012; the Oceanside Quadrangle (15-minute series), dated 1893, 1898, 1901, and 1947; (see Appendix B).

The surrounding properties appear to be vacant land on the 1893, 1898, 1901, 1947, 1948, and 1949 topographic map sheets. The alignment of Leucuadia Blvd is shown on the 1947 and newer topographic map sheets.

Structures can be observed to the southwest and the water reservoir southeast of the Site on the 1968 topographic map sheet.

The alignment of Quail Gardens Drive can be observed to the east of the Site on the 1997 and 2012 topographic map sheets.

The 2012 map is presented as Figure 1 in Appendix A.

7.2.3 City Directories

GeoTek has reviewed a City Directory Image report obtained from and provided by EDR for the Site and surrounding property addresses. No images were provided for the years reported.

7.2.4 SANBORN MAP REVIEW

Sanborn Maps for the Site were requested from EDR-Sanborn, which owns and maintains the largest and most complete collection of the maps. According to EDR, source sheets were not available for the property; therefore, it is not likely that source sheets would be available for the adjoining properties. The Sanborn Map Report is included in Appendix B.

7.3 HISTORICAL USE SUMMARY

Based on readily available historic information, the Site appears to have generally been unimproved land with exception to possible agricultural use between 1939 and 1953, with a residential structure constructed around 1953. The Site appears to have been continued as agricultural use until around 1979, when covered nursey structures were observed on aerial photographs. Nursery use appears to have increases in size and footprint to its current size.

Data gaps exist prior to 1939, and between 1947 to 1952, 1954 to1963, 1965 and 1967 to 1969, 1971 to 1978, 1980 to 1984, 1986 to 1989, 1991 to 1993,1995 to 2004, 2006 to 2008, 2010 to 2011, and 2013 to 2015 due to the limited records which are reasonably ascertainable in the local area. However, it is our opinion that additional historic information, if it were to become available, is not likely to change the conclusions or recommendations of this assessment.

8.0 SIGNIFICANT DATA GAPS

No significant data gaps were discovered while performing this Phase I Environmental Site Assessment. Therefore, it is our opinion that sufficient information was obtained to identify current Site conditions and past Site usage.

Minor data gaps include:

- Gaps in the historic records prior to 1939, and between 1947 to 1952, 1954 to1963, 1965 and 1967 to 1969, 1971 to 1978, 1980 to 1984, 1986 to 1989, 1991 to 1993,1995 to 2004, 2006 to 2008, 2010 to 2011, and 2013 to 2015;

- GEOTEK has not received nor reviewed Chain-of-Title documents for the Site.

It is our opinion that additional information, if it were to become available, is not likely to change the conclusions or recommendations of this assessment.

9.0 CONCLUSIONS AND RECOMMENDATIONS

GEOTEK has performed a Phase I Environmental Site Assessment (ESA) for the subject Site in substantial conformance with the scope and limitations of ASTM E 1527-13 and GEOTEK Proposal No. P0400619-SD, dated April 12, 2019. Any exceptions to, or deletions from, this practice are described in the appropriate sections of this report.

This Phase I Environmental Site Assessment has revealed evidence of a recognized environmental condition and an environmental concern in connection with the subject Site.

A trash compactor on a concrete pad located in the northern portion of the Site was leaking during our site visit, as evident by staining on the equipment and surrounding soil. Sampling and testing of this area for impacted soil surround the pad is recommended. As an alternative, the impacted soils around the concrete pad can be excavated and disposed to a hazardous facility.

The Site is an active botanical nursery. Environmental impacts related to herbicides, pesticides, and fertilizer are considered to be a likely contaminant impacting the Site. Housekeeping practices were found to be less than optimal, further indicating potential for mis-handling of these materials. A combination of random and focused field sampling and laboratory testing program is recommended to identify or dismiss concerns related to past and current agricultural and botanical production at the Site.

In addition, the existing residential structure located in the southwestern portion of the Site and the existing covered botanical nursery greenhouses may contain asbestos related construction materials and lead based paint. Prior to demolition, an asbestos and lead material survey must be performed to evaluate potential hazards with demolition and disposal.

10.0 CERTIFICATIONS

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject Site. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR 312.

The qualifications of the Project Team are included in Appendix E.

We appreciate this opportunity to be of service. If you have any questions, or if we can be of further service, please contact us at (760) 599-0509.

Sincerely,
GEOTEK, INC.



Christopher D. Livesey
CEG 2733, Exp. 5/31/21
Project Geologist

J. Michael Batten, REPA
Environmental Services Manager
Registered Environmental Property Assessor
No. 113162 (expires 06/15/20)

Anna M. Scott
Project Geologist

11.0 REFERENCES

CALIFORNIA, STATE OF

- Kennedy, M.P., Tan, S.S., Bovard, K.R, Alvarez, R.M., Watson, M.J., and Gutierrez, C.I., 2007, "Geologic Map of the Oceanside 30'x60'-minute Quadrangle, California," U.S. Geological Survey Regional Geologic Map No. 2, scale 1:100,000
- Water Resources, Department of Hydrologic Data

ENVIRONMENTAL DATA RESOURCES, INC.

- Aerial Photo Decade Package, Inquiry No. 2777506.8, dated September 5, 2019
- Certified Sanborn Map Report, Inquiry No. 5777506.3 dated September 4, 2019
- City Directory Image Report, Inquiry No. 5777506.5, dated September 6, 2019
- Historical Topo Map Report, Inquiry No. 5777506.4, dated September 4, 2019
- Radius Map Report, Inquiry No. 5777506.2s, dated September 5, 2019
- Vapor Encroachment Screen Report, Inquiry No. 5777506.2s, dated September 18, 2019

LEIGHTON AND ASSOCIATES, INC.

- SOIL VAPOR SURVEY AND EXPOSURE ASSESSMENT REPORT FOR THE DEED RESTRICTED PARCEL NO. 2546121000, ENCINITAS RANCH, ENCINITAS, CALIFORNIA, PROJECT NO. 042369-002, DATED SEPTEMBER 9, 2009.

- WORK PLAN FOR METHANE PRESSURE TESTING AND CHARACTERIZATION, LIMITED SOIL SAMPLING, AND ADDITIONAL SOIL VAPOR SAMPLING FOR THE DEED RESTRICTED PARCEL NO. 2546121000, ENCINITAS RANCH, ENCINITAS, CALIFORNIA, PROJECT NO. 042369-002, DATED APRIL 7, 2010.

- LIMITED ADDITIONAL ASSESSMENT AND METHANE CHARACTERIZATION REPORT FOR THE DEED RESTRICTED PARCEL NO. 2546121000, ENCINITAS RANCH, ENCINITAS, CALIFORNIA, PROJECT NO. 042369-002, DATED JULY 29, 2010.

SAN DIEGO, COUNTY OF

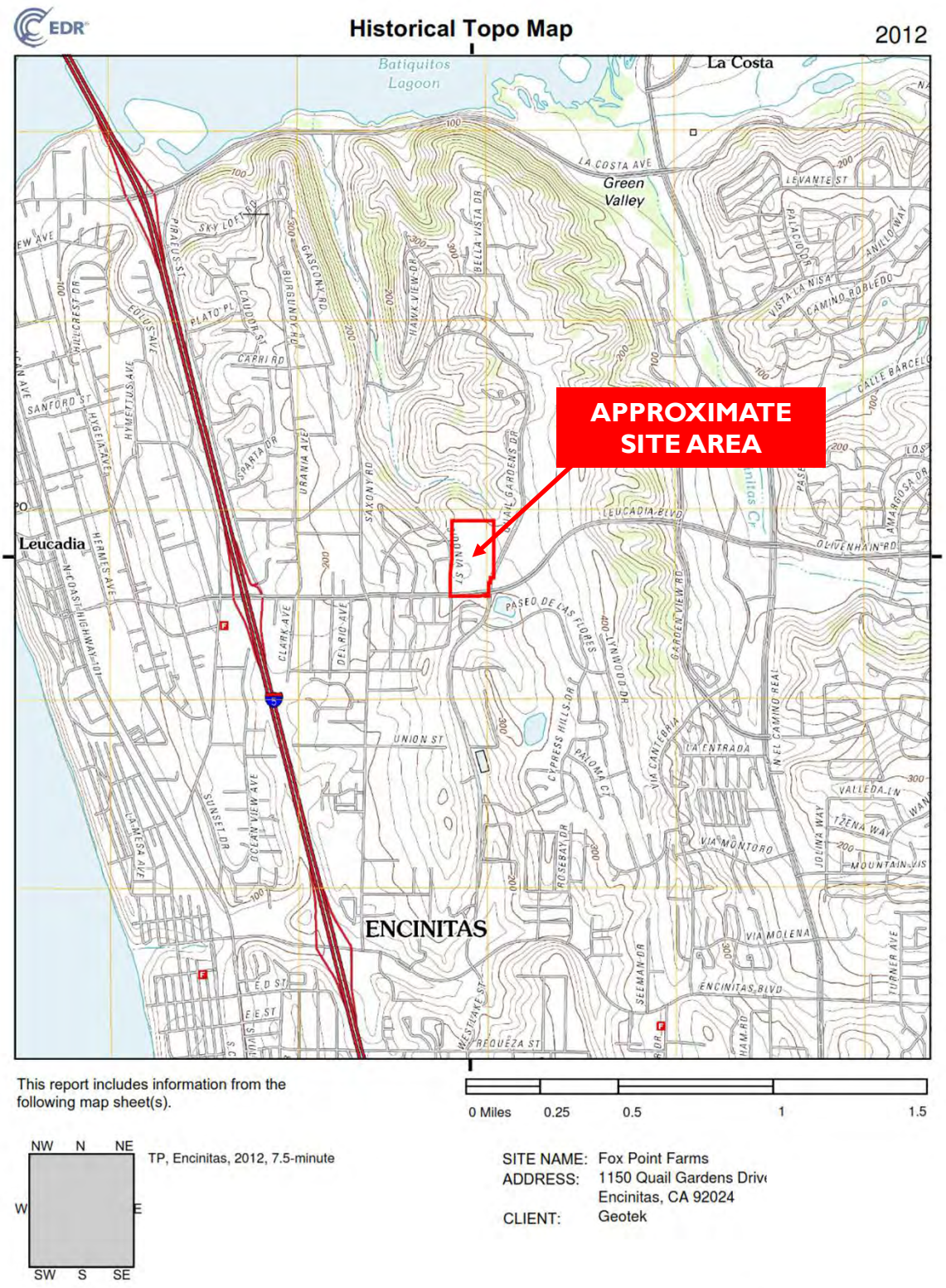
- Assessor's Office, Records Inquiry
- Fire Department, Records Inquiry
- Police Department, Records Inquiry

U.S. GOVERNMENT

- Drug Enforcement Agency
  Records inquiry, (*http://www.dea.gov/clan-lab)*
  - Records inquiry, http://www.dea.gov/seizures
  - Federal Emergency Management Agency (FEMA)

APPENDIX A

FIGURES



Nolen Communities, LLC.
Fox Point Farms Project
1150 Quail Gardens Drive,
Encinitas, California

Project No. 3611-SD

NORTH

Figure 1
Site Location and General Site Topography Map

GEOTEK



Nolen Communities, LLC.
Fox Point Farms Project
1150 Quail Gardens Drive,
Encinitas, California

Project No. 3611-SD

NORTH

Figure 2
Site Location Map

GEOTEK

APPENDIX B

SUPPORTING DOCUMENTS

USER QUESTIONNAIRE

INTRODUCTION

In order to qualify for one of the *Landowner Liability Protections* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2002, the *user* must provide the following information (if available) to the *environmental professional.* Failure to provide this information could result in a determination that "*all appropriate inquiry*" is not complete.

(1) Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law?

CIRCLE YES *or* NO

If yes, please explain in detail.

(2) Are you aware of any Act Use Limitations (AUL), such as *engineering controls*, land use restrictions or *institutional controls* that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?

YES *or* NO

If yes, please explain.

(3) As the *user* of this Environmental Site Assessment (ESA) do you have any specialized knowledge or familiarity related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former *occupants* of the *property* or its neighboring *property,* so that you may have specific knowledge of the chemicals and processes used by this type of business?

YES *or* NO

If yes, please explain. This site is used for flower farming. Fox Point farms began farming this site in 1974. Previous to 1974 it was used for the production of Geranium cuttings as an outdoor farm.

(4) Does the purchase price being paid for this *property* reasonably reflect the fair market value of the *property*?

(YES) or NO

If you believe that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

YES or NO N/A

If yes, please explain.

(5) Are you aware of commonly known or *reasonably* ascertainable information that would help the *environment professional* to identify conditions pinpointing releases or threaten releases of hazardous materials and/ or chemicals? For example, as user,

(a.) Do you know of any past uses of the *property*? (YES) or NO
Geranium cuttings farm

(b.) Do you know of specific chemicals that are present or once were present at the *property*? (YES) or NO
Yes I have records of use for many years. Pesticide use.

(c.) Do you know of any chemical spills or any other chemical releases that have taken place at the *property*? YES or (NO)

(d.) Do you know of any environmental cleanups that have taken place at the *property*?
YES *or* (NO)

If any yes, please explain.

(6) As the user of this Environmental Site Assessment (ESA), based on your knowledge and experience related to the *property* are there any *obvious* indicators that point to the presence or likely presence of a contamination at the *property*?

(YES *or* NO)

If yes, please explain.

THERE ARE TWO SMALL SITES OF ABOUT 100 ft² EACH. THESE 2 SITES HELD A 100+ GALLON LIQUID SPRAY TANK. PESTICIDE MIXING WAS DONE IN THESE TWO AREAS

Completed By Robert Echter
Print Name

Leighton and Associates, Inc.
A LEIGHTON GROUP COMPANY

September 09, 2009

Project No. 042369-002

To: Bob Echter
1150 Quail Gardens Drive
Encinitas, California 92024-2365

Attention: Mr. Bob Echter

Subject: Soil Vapor Survey and Exposure Assessment Report for the Deed Restricted Parcel No. 2546121000, Encinitas Ranch, Encinitas, California

INTRODUCTION

Leighton and Associates, Inc. (Leighton) is pleased to present this soil vapor survey of the deed restricted parcel located northeast of Quail Gardens Drive and Leucadia Boulevard in Encinitas, California (Site, see **Figure 1** – Site Location Map). The soil vapor survey was conducted in accordance with Leighton's proposal to conduct a *Soil Vapor Survey of the Deed Restricted Parcel No. 2546121000, Encinitas Ranch, Encinitas, California*, dated August 12, 2008. The purpose of the soil vapor survey was to establish the presence or absence of contaminants in soil vapor that may pose a risk to human health if the Site were developed for residential use.

In 1997, Leighton performed an Environmental Investigation at the Site and sampled discolored soil "spoiled soils" which was placed on the property as a waste sludge from a sewage treatment plant. The "spoiled soils" were found to contain petroleum hydrocarbons above laboratory detection limits (Leighton, 1997). Based upon the data collected during this sampling, the San Diego Regional Water Quality Control Board (SDWQCB) allowed the placement of these soils at depth during the grading associated with the rerouting of Quail Gardens Drive. The SDRWQCB stated that the heavy hydrocarbons found in the "spoiled soils" did not pose a threat to ground water and could be placed in deep fill at the Site, with a recorded deed restriction noting the presence of these soils. The deed restriction stated that "no structures shall be constructed within the described area of non-standard grading fill without certification by a geotechnical engineer".

The rest of this report is not included herein

Leighton and Associates, Inc.
A LEIGHTON GROUP COMPANY

April 7, 2010

Project No. 042369-002

To: California Regional Water Quality Control Board
San Diego Region
9164 Sky Park Court, Suite 100
San Diego, California 92123-4353

Attention: Mr. Barry Pulver

Subject: Workplan for Methane Pressure Testing and Characterization, Limited Soil Sampling, and Additional Soil Vapor Sampling for the Deed Restricted Parcel No. 2546121000, Encinitas Ranch, Encinitas, California

Introduction

Leighton and Associates (Leighton) is pleased to submit this workplan to perform methane pressure testing and characterization, limited soil sampling, and additional soil vapor sampling for the deed restricted parcel located northeast of Quail Gardens Drive and Leucadia Boulevard in Encintas, California (Figure 1 - Site). This workplan has been prepared in response to a letter from the San Diego Regional Water Quality Control Board (SDWQCB), dated November 9, 2009. The purpose of this investigation is to characterize the extent and nature of elevated methane levels previously identified during a soil vapor survey conducted at the Site in September 2008. The results of this investigation will provide key information in determining the type and potential need for mitigation of the methane as a part of any future construction at the Site.

Background

In 1997, Leighton performed an Environmental Investigation at the Site and sampled discolored soil "spoiled soils" which was placed on the property as a waste sludge from a sewage treatment plant. The "spoiled soils" were found to contain petroleum hydrocarbons above laboratory detection limits. Based upon the data collected during this sampling, the SDWQCB allowed the placement of these soils at depth during the grading associated with the rerouting of Quail

Gardens Drive. The SDRWQCB stated that the heavy hydrocarbons found in the "spoiled soils" did not pose a threat to ground water and could be placed in deep fill at the Site, with a recorded deed restriction noting the presence of these soils. The deed restriction stated that "no structures shall be constructed within the described area of non-standard grading fill without certification by a geotechnical engineer".

In September 2008, Leighton conducted a preliminary soil vapor survey of the area of the Site for which future development is contemplated (Leighton, 2009). The results of this soil vapor survey indicated that there were very low levels of benzene (0.11- 0.16 ug/L in 5 out of 13 samples) and vinyl chloride (0.33 ug/L in 1 out of 13 samples) and higher levels of methane (10 – 320,000 ppmv in 13 of 13 samples analyzed). A preliminary analysis of toxic health risks associated with these detections indicated that there is no unacceptable health risk to residential occupants. The levels of methane, however, were determined to potentially pose an explosion hazard that may require mitigation. The analytical results reported as part of this investigation are shown on Figures 2 through 5.

Based upon the results of previous investigation and historical disposal at the Site, the methane appears to be from biodegradation of organic materials in the soil. Historically, the County of San Diego (County) found elevated levels of methane (hundreds of thousands of parts per million, similar range as found at this site) in the Rancho Bernardo area of the County, and later in other areas. The County for some years enforced an emergency methane code, but after considerable review determined that methane mitigation was not necessary for these types of situations. Leighton will utilize the results of the field and laboratory testing as part of this current investigation to properly characterize methane conditions at the site, and if warranted we will relate these conditions to the types of conditions exempted in the County from methane mitigation.

Scope of Work

The soil vapor pressure testing and characterization will consist of the installation and monitoring of soil vapor probes within the future development area of the Site (Figure 2). At the time of probe installation, Leighton will also collect soil samples at selected depths to determine the depth and thickness of any "spoiled soils" that were previously placed at the Site. Based on field conditions and initial soil gas screening, probe locations may be relocated and/or added to define the extent of potential methane migration beneath the future development area.

Details of the scope of work are as follows:

Task 1 **Soil Vapor Probe Installation and Sample Collection**

- Prior to drilling, each of the proposed sample locations will be marked for clearance through DIGALERT (Notification of underground utility locators).
- Prior to drilling, a permit application will be prepared and submitted to the County of San Diego – Department of Environmental Health for the installation of soil borings /temporary soil gas monitoring points.
- Soil borings will be advanced to approximately 15 ft bgs at three locations (Figure 2) using a geoprobe rig. The borings will be sampled continuously to a minimum of five ft bgs to determine the depth and thickness of spoiled soils, if any, that were previously placed at the Site. Up to four samples will be retained for offsite analysis of total petroleum hydrocarbons – extended range (TPHe) by EPA 8015M and benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA 8260B.
- Temporary soil vapor sampling probes will be installed in each boring at 5 and 15 ft bgs.
- Prior to methane and soil vapor sample collection, leak testing will be performed at each probe location using a tracer compound to ensure a lack of ambient air intrusion.
- At the time of installation, each probe will be screened using a RKI Eagle combustible gas using a RKI Eagle portable combustible gas monitor, calibrated for methane and pressure will be monitored with a magnehelic gauge.
- A grab soil gas sample will be collected at the time of installation from each probe location for methane characterization analysis. The sample will be analyzed by a specialty laboratory, Isotech Laboratory in Champaign, Illinois, for a suite of tests called Bacterial-Gas-One (BG-1), which is useful in distinguishing petrogenic (natural gas) from bacterial gas. Analyses will include quantifying concentrations of N_2, O_2, CO_2, Ar, H_2, He, CH_4, C_2H_6, C_2H_4, C_3H_8 , i C_4H_{10}, n C_4H_{10}, i C_5H_{12}, n C_5H_{12}, and C_6+ by gas chromatography, and determination of the $\delta^{13}C$ of CH_4, δD of CH_4, and $\delta^{13}C$ of CO_2 by mass spectrometry.
- Up to six additional grab soil vapor samples will be collected from the probes following installation and analyzed for BTEX by EPA 8260B.

Task 2 **Pressure Monitoring**

- Leighton will periodically monitor the pressure from the probes using a magnahelic gauge for a period of two weeks following probe installtion. A minimum of two morning and two afternoon readings will be obtained for each

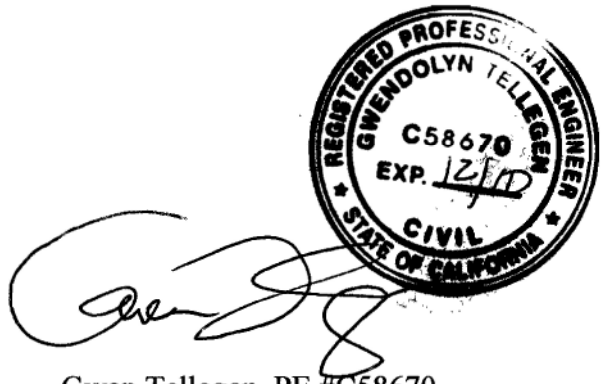
probe during this period. Following this monitoring period, one set of final combustible gas and pressure readings will be taken, prior to removing the probes.

Task 3 **Reporting**

- A report documenting the results of the soil vapor pressure testing and methane characterization, and limited soil and soil gas sampling will be prepared for submittal to SDWQCB. The report will discuss any recommended methane mitigation for the construction of a residence at the site.

Respectfully submitted,

LEIGHTON AND ASSOCIATES, INC.



Matthew Lesh
Project Geologist

Gwen Tellegen, PE #C58670
Principal Environmental Engineer

Attachments: Figure 1 – Site Location Map
Figure 2 – Site Plan with Proposed Methane Monitoring Probes
Figure 3 – Summary of Volatile Organic Compound Soil Vapor Data
Figure 4 – Summary of Shallow Methane Soil Vapor Data
Figure 5 – Summary of Deeper Methane Soil Vapor Data

Distribution: (1) Addressee
(1) Rele Properties, LLC, Attention: Mr. Bob Echter

The rest of this report is not included herein

Leighton and Associates, Inc.
A LEIGHTON GROUP COMPANY

July 29, 2010

Project No. 042369-002

To: Bob Echter
1150 Quail Gardens Drive
Encinitas, California 92024-2365

Attention: Mr. Bob Echter

Subject: Limited Additional Assessment and Methane Characterization Report for the Deed Restricted Parcel No. 2546121000, Encinitas Ranch, Encinitas, California

INTRODUCTION

Leighton and Associates, Inc. (Leighton) is pleased to present this limited additional assessment and methane characterization of the deed restricted parcel located northeast of Quail Gardens Drive and Leucadia Boulevard in Encinitas, California (Site, see **Figure 1** – Site Location Map). This work was conducted in accordance with workplan submitted to the San Diego Regional Water Quality Control Board (SDRWQCB), dated April 7, 2010 and approved in a letter from the SDRWQCB dated April 13, 2010. The purpose of the additional assessment was to investigate the characteristics of subsurface methane related to the former placement of "spoiled soils" at the Site. In addition, this work assessed the need for mitigation of the concentrations of methane identified at the Site, when it is developed for residential use. References are provided in **Appendix A.**

BACKGROUND

In 1997, Leighton performed an Environmental Investigation at the Site and sampled discolored soil "spoiled soils" which was placed on the property as a waste sludge from a sewage treatment plant. The "spoiled soils" were found to contain petroleum hydrocarbons above laboratory detection limits (Leighton, 1997). Based upon the data collected during this sampling, the SDRWQCB allowed the placement of these soils at depth during the grading associated with the rerouting of Quail Gardens Drive. The SDRWQCB stated that the heavy hydrocarbons found in

the "spoiled soils" did not pose a threat to ground water and could be placed in deep fill at the Site, with a recorded deed restriction noting the presence of these soils. The deed restriction stated that "no structures shall be constructed within the described area of non-standard grading fill without certification by a geotechnical engineer".

In September 2008, Leighton conducted a preliminary soil vapor survey of the area of the Site for which future development is contemplated (Leighton, 2009). The results of this soil vapor survey indicated that there were very low levels of benzene (0.11- 0.16 ug/L in 5 out of 13 samples) and vinyl chloride (0.33 ug/L in 1 out of 13 samples) and higher levels of methane (10 – 320,000 ppmv in 13 of 13 samples analyzed). A preliminary analysis of potential toxic health risks associated with these detections indicated that there is no unacceptable health risk to residential occupants. The levels of methane, however, were determined to potentially pose an explosion hazard that may require mitigation. The locations and results of the 2008 soil vapor survey are shown on **Figures 4, 5, and 6**.

Based upon the historical burial of sludge waste and the results of previous site investigations, the methane appeared to be from biodegradation of organic materials in the soil. The County of San Diego (County) has found elevated levels of methane (hundreds of thousands of parts per million, similar range as found at this site) in the Rancho Bernardo area of the County, and later in other areas such as Rancho Santa Fe. The County for some years enforced an emergency methane code, but after considerable review determined that methane mitigation was not necessary for these types of situations. To properly characterize methane conditions at the Site, Leighton prepared a workplan dated April 7, 2010 and submitted the SDRWQCB (Leighton, 2010). The workplan proposed field and laboratory testing to properly characterize methane conditions at the Site and determine if the Site can be exempted from methane mitigation by the County. The workplan also proposed the collection of additional soil and soil vapor samples to determine the potential impact inside the better defined area of potential future residential use. The workplan was approved by the SDRWQCB in a letter dated April 13, 2010.

SUMMARY OF FIELD WORK CONDUCTED

Boring Location Mark Out and Underground Service Alert (USA)

Leighton marked the Site with white paint as appropriate for USA identification. USA was then contacted 48 hours prior to the commencement of field activities to designate potential underground utility location conflicts. No utility conflicts in the investigation area were noted.

The rest of this report is not included herein

DEH RECYCLED WATER FILE TARGET SHEET

Document Name: LREC_2987_01-05-2010
(KIVA Permit Type_Permit Number_Date)

Document Type: ☐ New Recycled Water Use Site X Retrofit
☐ Original Plans ☐ As-Built

Location: 1150 QUAIL GARDENS, ENCINITAS

APN(s): 254-612-10-00

Number of Pages: 6

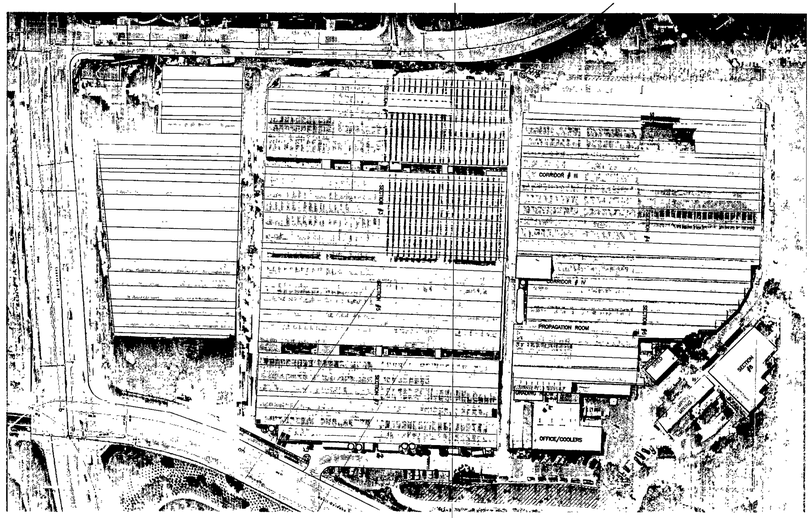
Document Date: 01-05-2010

Special Instructions:

RECYCLED WATER CONVERSION PLANS FOR:
DRAMM & ECHTER, INC.
1150 QUAIL GARDENS DRIVE
ENCINITAS, CALIFORNIA

#RW0000

2987



DISCLAIMER:
This map should not be used for Engineering, Survey, or Site-Specific Analysis.

Every reasonable effort has been made to assure the accuracy of the data provided; nevertheless, some information may not be accurate. The City of Encinitas assumes no liability or responsibility arising from the use of or reliance upon this information.

- Map Coordinates: Stateplane NAD83 Feet, CA Zone 6
- Parcel lines are not survey accurate, and some parcels can be positionally off up to +/- 40 feet
- Photo flight dates: April 2005. 3 inch pixel resolution.
- Orthophoto and Topo positional accuracy meet the precision required to support National Map Accuracy Standards for 1" = 100' mapping

LOGIS\Shea\MXDs\OtoSI\OtoSI1.mxd

N

0 230 Feet
1 inch equals 40 feet

NORTH

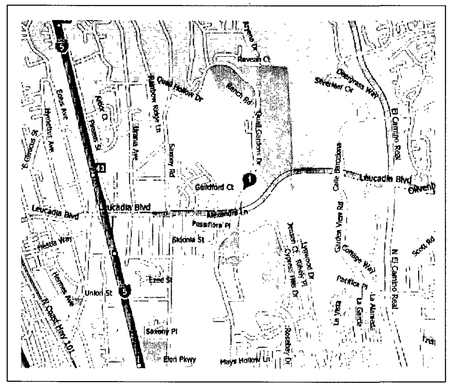
INDEX MAP - NOT TO SCALE

SHEET INDEX:

LANDSCAPE TITLE SHEET	***LT- 1 / SHT 1***
IRRIGATION PLAN	***I-1 / SHT 2***
IRRIGATION NOTES AND LEGEND	***I-2 / SHT 3***
IRRIGATION NOTES AND LEGEND	***I-3 / SHT 4***
IRRIGATION SPECIFICATIONS	***I-4 / SHT 5***

THERE ARE NO DRINKING FOUNTAINS ON THIS SITE WITHIN THE IRRIGATED AREAS. ALL DRINKING FOUNTAINS ARE ON THE BUILDING.

THERE ARE NO WELLS ON THIS SITE.



VICINITY MAP- NOT TO SCALE

NORTH

LANDSCAPE NOTES:

1. ALL LANDSCAPE AND IRRIGATION SHALL BE DEVELOPED IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE CITY COUNCIL AS SET FORTH IN THE CITY OF ENCINITAS LANDSCAPE ORDINANCE. ON FILE IN THE OFFICE OF THE CITY CLERK.
2. IF ANY HARDSCAPE OR LANDSCAPE INDICATED ON THE APPROVED PLANS IS DAMAGED OR REMOVED DURING DEMOLITION OR CONSTRUCTION, IT SHALL BE REPAIRED OR REPLACED IN KIND WITH EQUIVALENT SIZE PER THE APPROVED PLANS.
3. TREES SHALL BE LOCATED AND MAINTAINED TO PRESERVE A CLEAR ZONE OF AT LEAST TEN FEET FROM FIRE HYDRANTS, OVERHEAD UTILITY WIRES, STREET LIGHT LUMINARIES AND ABOVE GROUND UTILITY STRUCTURES SUCH AS TRANSFORMER ENCLOSURES.
4. TREES SHALL BE PLANTED AT LEAST FIVE FEET FROM ANY UNDERGROUND UTILITY SUCH AS SEWER, GAS, ELECTRIC AND TELEPHONE. RIPARIAN TREE SPECIES SHALL BE PLANTED AT LEAST 30 FEET FROM CITY SEWER, WATER AND DRAINLINES.
5. PROVIDE 'BIOBARRIER' ROOT BARRIERS FOR TEN FEET TO BOTH SIDES OF ALL STREET TREES WITH IN FIVE FEET OF ANY HARDSCAPE PAVING.

MINIMUM TREE SEPARATION DISTANCE

IMPROVEMENT / MINIMUM DISTANCE TO STREET TREE
TRAFFIC SIGNALS (STOP SIGN) - 20 FEET
UNDERGROUND UTILITY LINES - 5 FEET (8 FEET FROM SEWER LINES)
ABOVE GROUND UTILITY LINES - 10 FEET
DRIVEWAY (ENTRIES) - 10 FEET
INTERSECTIONS (INTERSECTING CURB LINES OF TWO STREETS) - 25 FEET

RECYCLED WATER STANDARD PLAN NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE 'RULES AND REGULATIONS FOR RECYCLED WATER SERVICE WITHIN THE SAN DIEGUITO WATER DISTRICT.'
2. DRINKING WATER FOUNTAINS AND DESIGNATED OUTDOOR EATING AREAS SHALL BE PROTECTED AGAINST CONTACT WITH RECYCLED WATER SPRAY, MIST OR RUNOFF..
3. BEST MANAGEMENT PRACTICES SHALL BE USED TO ELIMINATE PONDING, RUN-OFF, OVER-SPRAY AND MISTING.
4. HOSE BIBS ARE STRICTLY PROHIBITED.
5. ON-SITE CROSS CONNECTIONS BETWEEN RECYCLED WATER LINES AND POTABLE LINES ARE STRICTLY PROHIBITED.
6. NO SUBSTITUTIONS OF PIPE MATERIALS WILL BE ALLOWED WITHOUT PRIOR APPROVAL OF THE SAN DIEGUITO WATER DISTRICT.
7. ALL MAINLINE PIPES SHALL HAVE WARNING TAPE PER SAN DIEGUITO WATER DISTRICT RULES AND REGULATIONS.
8. HOURS FOR IRRIGATION WITH RECYCLED WATER ARE FROM 9:00 P.M. TO 6:00 A.M. THE HOURS FOR IRRIGATION WITH DISINFECTED TERTIARY RECYCLED WATER MAY BE MODIFIED BY LOCAL AUTHORITY. IRRIGATION DURING PUBLIC USE PERIODS WITH DISINFECTED TERTIARY RECYCLED WATER SHALL BE UNDER THE SUPERVISION OF THE DESIGNATED USER SUPERVISOR. IRRIGATION WITH WATER OF A LESSER QUALITY THAN DISINFECTED TERTIARY RECYCLED WATER SHALL BE BE TWEEN THE HOURS OF 9:00 P.M. AND 6:00 A.M.
9. BURIAL OF ALL WIRING AND PIPING SHALL BE PER SAN DIEGUITO WATER DISTRICT'S RULES AND REGULATIONS.
10. NON-DESIGNATED USE AREAS SHALL BE PROTECTED FROM CONTACT WITH RECYCLED WATER, WHETHER BY WINDBLOWN SPRAY OR BY DIRECT APPLICATION THROUGH IRRIGATION OR OTHER USE. LACK OF PROTECTION, WHETHER BY DESIGN, CONSTRUCTION PRACTICE OR SYSTEM OPERATION, IS STRICTLY PROHIBITED.
11. IRRIGATION HEADS SHALL BE RELOCATED OR ADJUSTED TO MINIMIZE OR ELIMINATE OVER-SPRAYING ON SIDEWALKS, STREETS AND NON-DESIGNATED USE AREAS.
12. RECYCLED WATER QUICK COUPLING VALVES SHALL BE OF A TYPE DESIGNED FOR USE ON RECYCLED WATER DISTRIBUTION SYSTEMS PER SAN DIEGUITO WATER DISTRICT'S RULES AND REGULATIONS.
13. ON RECYCLED WATER SYSTEM, ALL APPURTENANCES (SPRINKLER HEADS, VALVE BOXES, ETC.) SHALL BE COLOR-CODED PURPLE PER AWWA GUIDELINES AND SECTION 116815 OF THE CALIFORNIA HEALTH AND SAFETY CODE.
14. ALL IRRIGATION PIPES SHALL BE STENCILED WITH THE WARNING 'NON-POTABLE OR RECYCLED WATER', COLOR-CODED AND LAID WITH WARNING TAPE AND STENCILING ORIENTED TOWARD THE TOP OF THE TRENCH PER SAN DIEGUITO WATER DISTRICT'S RULES AND REGULATIONS.
15. ON NEW ON-SITE SYSTEMS (POST-METER), POTABLE WATER, CONSTANT PRESSURE RECYCLED AND SEWER LINES SHALL BE PLACED A MINIMUM OF FOUR (4) FEET APART OR AS DIRECTED BY THE GOVERNING REGULATORY AGENCY. MEASUREMENTS SHALL BE BETWEEN FACING SURFACES, NOT PIPE CENTERLINES.
16. CONSTANT PRESSURE RECYCLED WATER LINES SHALL CROSS AT LEAST TWELVE (12) INCHES BELOW POTABLE WATER LINES AND SHALL MAINTAIN AT LEAST TWELVE (12) INCHES CROSSING SEPARATION BETWEEN OTHER UTILITIES.
17. IF A CONSTANT PRESSURE RECYCLED WATER LINE MUST BE INSTALLED ABOVE A POTABLE WATER LINE OR LESS THAN TWELVE (12) INCHES BELOW A POTABLE WATER LINE, THEN THE RECYCLED WATER LINE SHALL BE INSTALLED WITHIN AN APPROVED PROTECTIVE SLEEVE PER SAN DIEGUITO WATER DISTRICT'S RULES AND REGULATIONS.
18. DEVELOPER/CONTRACTOR SHALL CONDUCT A CROSS-CONNECTION TEST AND COVERAGE TEST AS DIRECTED BY THE SAN DIEGUITO WATER DISTRICT AND THE SAN DIEGO COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH PRIOR TO ANY USE OF RECYCLED WATER.
19. THE REQUIRED CROSS-CONNECTION INSPECTION SHALL BE DONE BY EITHER THE SAN DIEGUITO WATER DISTRICT AND/OR THE SAN DIEGO COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH.
20. THE DESIGN AND LOCATIONS PROPOSED FOR RECYCLED WATER 'DO NOT DRINK' SIGNS SHALL BE CALLED OUT ON THE PLANS.
21. AN ON-SITE WATER SUPERVISOR SHALL BE DESIGNATED IN WRITING. THIS INDIVIDUAL SHALL BE FAMILIAR WITH PLUMBING SYSTEMS WITHIN THE PROPERTY, WITH THE BASIC CONCEPTS OF BACKFLOW CROSS CONNECTION PROTECTION, THE DISTRICT RULES AND REGULATIONS AND THE SPECIFIC REQUIREMENTS OF A RECYCLED WATER SYSTEM.

IN CASE OF EMERGENCY CONTACT: JACK VAN LEEUWEN – _____ AT _____
NAME PHONE NUMBER

AFTER HOURS CONTACT: JACK VAN LEEUWEN – _____ AT _____
NAME PHONE NUMBER

22. ALL PUBLIC AND PRIVATE POTABLE WATER MAINS INCLUDING FIRE MAINS AND ANY WATER WELLS AND WATERCOURSES WITHIN THE RECYCLED WATER PROJECT SHALL BE SHOWN ON THE PLANS.
23. CALL OUT ON THE PLANS IF THERE ARE OR ARE NOT DRINKING FOUNTAINS AND/OR DESIGNATED OUTDOOR SEATING AREAS ON THE SITE.
24. EDUCATE ALL MAINTENANCE PERSONNEL ON A CONTINUOUS BASIS OF THE PRESENCE OF RECYCLED WATER. PERSONNEL MUST BE INFORMED THAT RECYCLED WATER IS MEANT FOR IRRIGATION PURPOSES ONLY, AND IS NOT APPROVED FOR DRINKING PURPOSES. HAND WASHING, CLEANING OF TOOLS, ETC.
25. A PHYSICAL SEPARATION SHALL BE PROVIDED BETWEEN ADJACENT AREA IRRIGATED WITH RECYCLED WATER AND POTABLE WATER. SEPARATION SHALL BE PROVIDED BY DISTANCE, CONCRETE MOW STRIPS OR OTHER APPROVED METHODS.

DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM LANDSCAPE ARCHITECT OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE AND THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE SAN DIEGUITO WATER DISTRICT AND SAN DIEGO COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS LANDSCAPE ARCHITECT OF WORK, MY RESPONSIBILITIES FOR PROJECT DESIGN.

JPBLA, INC.	JAMES P. BENEDETTI	Jas P. Benedetti	8/17/09
FIRM	LANDSCAPE ARCHITECT		
4403 MANCHESTER AVE. SUITE 201, ENCINITAS CA 92024, 760/479-0644		#3058	9/31/10
ADDRESS AND TELEPHONE		LICENSE	EXPIRATION DATE

DEVELOPER/OWNER
DRAMM & ECHTER, INC.
1150 QUAIL GARDENS DRIVE
ENCINITAS CA 92024
(760) 436-0188

PROJECT ADDRESS
DRAMM & ECHTER, INC.
1150 QUAIL GARDENS DRIVE
ENCINITAS CA 92024
(760) 436-0188

ASSESSOR'S PARCEL NOS.
000-000-00

LANDSCAPE ARCHITECT OF WORK:

I HEREBY DECLARE THAT I AM THE LANDSCAPE ARCHITECT 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 CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF ENCINITAS IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS LANDSCAPE ARCHITECT OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

Jas P. Benedetti 8/17/09
JAMES P. BENEDETTI, R.L.A. #3058 *DATE*
MY REGISTRATION EXPIRES 09/30/10
JPBLA, INC.
4403 MANCHESTER AVE. SUITE 201
OLIVENHAIN CA 92024
760/479-0644

LICENSED LANDSCAPE ARCHITECT
JAMES P. BENEDETTI 3058
Signature
Ren Date 9/30/10
Date 8/17/09
STATE OF CALIFORNIA

JPBLA
JAMES P. BENEDETTI
LANDSCAPE ARCHITECT
4403 MANCHESTER AVE. SUITE 201
ENCINITAS, CA 92024
760/479-0644 FAX 760/479-0645

COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
APPROVED BY: DATE:

Underground Service Alert
DIG! BEFORE YOU DIG
Call: TOLL FREE
1-800
227-2600
TWO WORKING DAYS BEFORE YOU DIG

"AS-BUILT"
BY: _____ DATE:
RCE: _____ EXP:

REVISIONS	APPROVED	DATE	REFERENCES	DATE

BENCH MARK
BENCHMARK: -
DESCRIPTION: -
LOCATION: -
ELEV: 119.467 DATUM:

SCALE
HORIZONTAL 1"=30'
VERTICAL N/A

ENCINITAS FIRE PROTECTION DISTRICT
BY: _____ DATE

DESIGNED BY	DRAWN BY	CHECKED BY

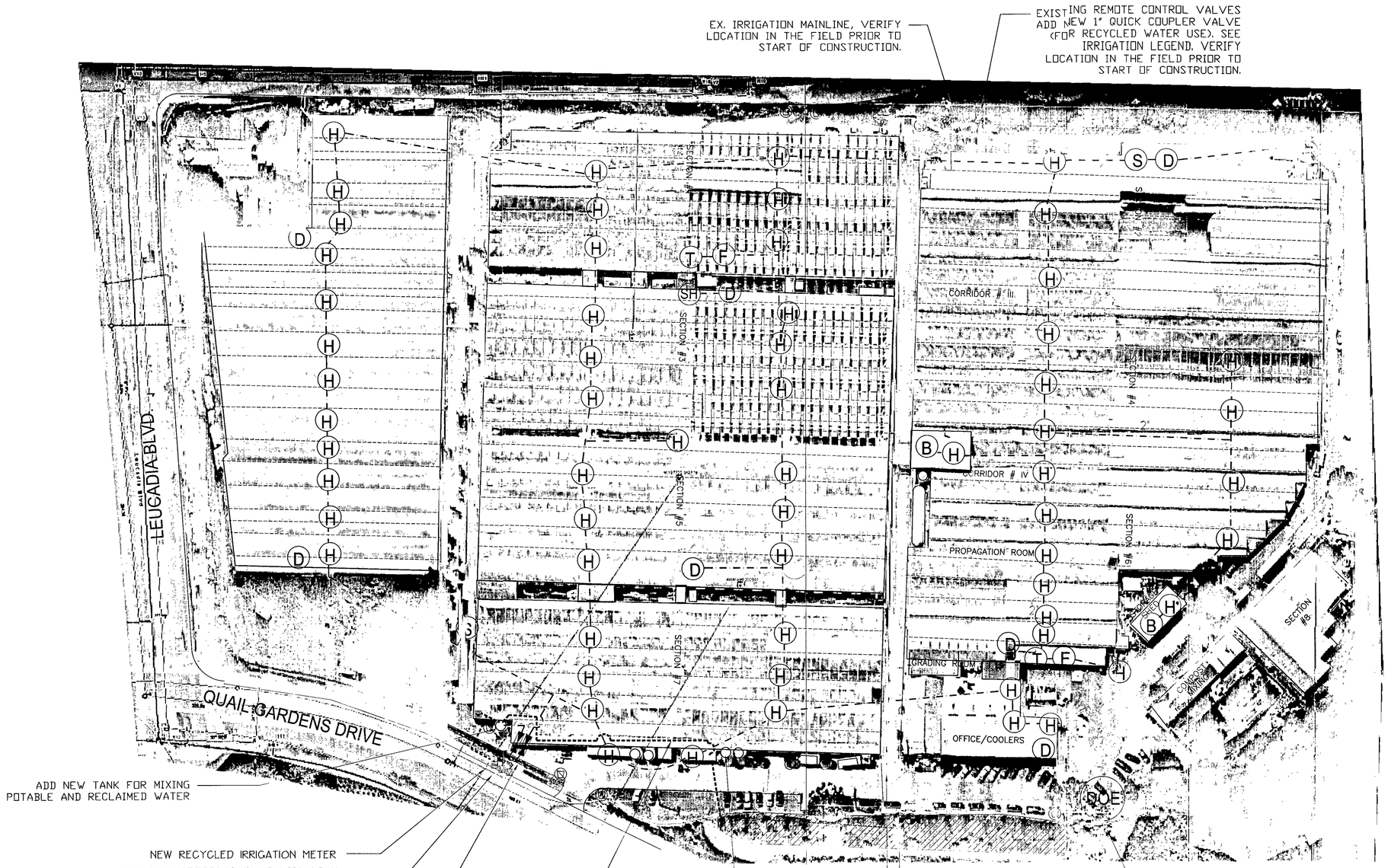
PLANS PREPARED UNDER THE SUPERVISION OF
JAMES P. BENEDETTI (NAME)
DATE: 8/17/09
R.L.A. NO.: 3058
EXP. 9/30/10

APPROVALS
RECOMMENDED BY: _____ DATE: _____
APPROVED BY: _____

CITY OF ENCINITAS PUBLIC WORKS DEPARTMENT
RECYCLED WATER CONVERSION PLANS FOR:
DRAMM & ECHTER, INC.
1150 Quail Gardens Drive, Encinitas, CA

DRAWING NO.
LT-1
SHEET 1 OF 5

LANDSCAPE ARCHITECT'S NAME: JPBLA, INC.
PHONE NO.: (760) 479-0644



POTABLE WATER USES

SYMBOL	
Ⓑ	BOILER
Ⓓ	DRINKING FOUNTAIN
Ⓔ	EYEWASH STATION
Ⓕ	FOOD PREPARATION
Ⓗ	HOSE WATER
Ⓣ	TOILETS
Ⓢ	SINK
Ⓢⓗ	SHOWERS

NORTH

SCALE: 1"=30'

30 0 30 60 90

"AS-BUILT"

BY: _____ DATE: _____

RCE: _____ EXP: _____

JPBLA
JAMES P. BENEDETTI
LANDSCAPE ARCHITECT
4403 MANCHESTER AVE. SUITE 201
ENCINITAS, CA 92024
760/479-0644 FAX 760/479-0645

LICENSED LANDSCAPE ARCHITECT JAMES P. BENEDETTI 3058 Signature Ren Date 9/30/10 Date 8/17/09 STATE OF CALIFORNIA

IRRIGATION PLAN

REVISIONS	APPROVED	DATE	REFERENCES	DATE

BENCH MARK
BENCHMARK: -
DESCRIPTION: -
LOCATION: -
ELEV: 119.467 DATUM:

SCALE
HORIZONTAL 1"=30'
VERTICAL N/A

ENCINITAS FIRE PROTECTION DISTRICT
BY: _____ DATE

DESIGNED BY | DRAWN BY | CHECKED BY

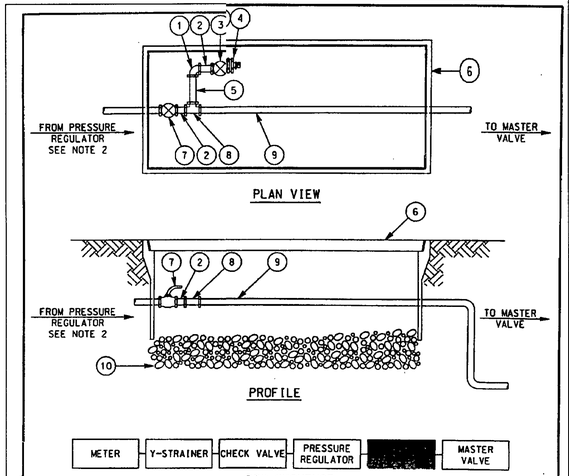
PLANS PREPARED UNDER THE SUPERVISION OF
JAMES P. BENEDETTI (NAME)
DATE: 8/17/09
R.L.A. NO.: 3058
EXP. 9/30/10

APPROVALS
RECOMMENDED BY: _____ DATE: _____
APPROVED BY: _____

CITY OF ENCINITAS PUBLIC WORKS DEPARTMENT
RECYCLED WATER CONVERSION PLANS FOR:
DRAMM & ECHTER, INC.
1150 Quail Gardens Drive, Encinitas, CA

DRAWING NO.
I-1
SHEET 2 OF 5

LANDSCAPE ARCHITECT'S NAME: JPBLA, INC.
PHONE NO.: (760) 479-0644



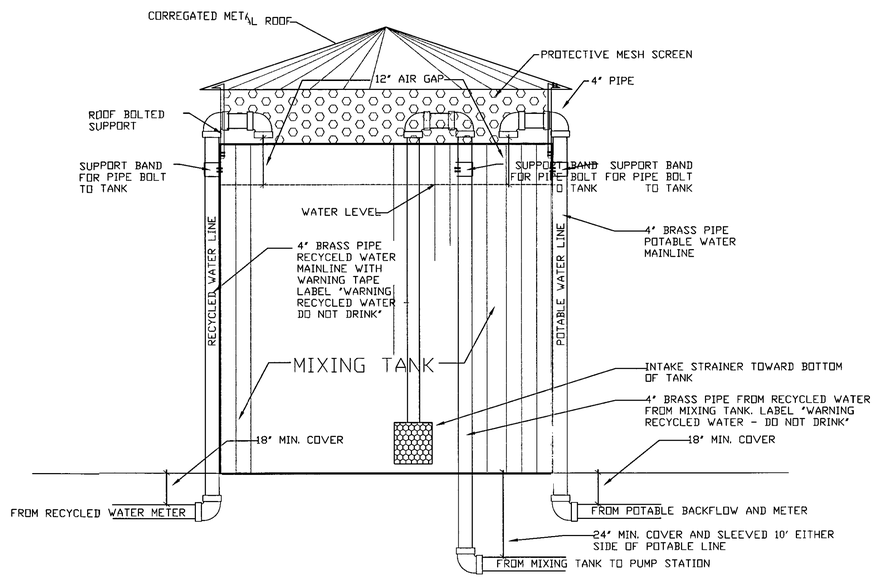
NOTES:
1) REFER TO SECTION 15151 AND 15152 OF THE SPECIFICATIONS
2) INSTALL ONE TEST STATION LOCATED DIRECTLY DOWNSTREAM OF IRRIGATION CHECK AND PRESSURE REGULATOR VALVE PER WR-03
3) SECOND CROSS CONNECTION TEST STATION INSTALLED AT FAR END OF ON-SITE MAIN LINE
4) BRAND "TS" ON PLASTIC TEST STATION LIDS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
1	19mm (3/4") SCH 80 PVC 90 ELL	5	19mm (3/4") SCHEDULE 80 BRASS NIPPLE
2	19mm (3/4") SCH 80 BRASS CLOSE NIPPLE	6	VALVE BOX WITH PURPLE COLORED LID
3	19mm (3/4") BRASS LOCKABLE BALL VALVE, FIP x METER SWIVEL	7	LINE SIZE BRASS BALL VALVE
		8	LINE SIZE x 19mm (3/4") SCH 80 TEE
4	19mm x 6mm (3/4" x 1/4") BRASS THREADED BUSHING WITH 6.3mm (1/4") CAPPED OUTLET	9	PURPLE PVC CL 315 SCH 40 MAIN LINE
		10	150mm (6") BASE OF 10mm (3/8") ROCK

RECYCLED WATER IRRIGATION
CROSS CONNECTION TEST STATION

WATER AGENCIES STANDARDS
COMMITTEE APPROVAL: 03/01/2001
DRAWING NUMBER: WR-04

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WATER TOWER WITH AIR GAP DETAIL

NTS

(1) MIXING TANK FOR POTABLE AND RECYCLED WATER WITH AIR GAP DETAIL

IRRIGATION LEGEND

EQUIPMENT

SYMBOL	MODEL/DESCRIPTION	DETAIL	REMARKS
	EXISTING REMOTE CONTROL VALVE TO REMAIN ADD NEW PURPLE COLOR LIDS PER DETAIL AND NOTES	5/I-5	SIZE PER PLAN
	EXISTING BALL VALVE TO REMAIN	-	
	NEW 1" ACME THREADED QUICK COUPLER VALVE TO REPLACE EXISTING QUICK COUPLE VALVES	10/I-4	
	EXISTING IRRIGATION MAINLINE TO REMAIN		
	IRRIGATION MAINLINE - CLASS 315 PURPLE/RECLAIMED PVC INSTALL @ 18" BELOW GRADE.		
	NEW POTABLE WATER LINE TO HAVE POTABLE MARKING SLEEVE COVERING		
C	EXISTING MC-24 STATION IRRITROL IRRIGATION CONTROLLER: PROTECT IN PLACE		
	EX. REDUCED PRESSURE BACKFLOW DEVICE TO REMAIN	-	
M	(2) EXISTING POTABLE WATER METER TO REMAIN		
RM	2" RECLAIMED WATER METER W/ 2" SERVICE		
	PVC SLEEVE AT RECLYCLED MAINLINE /POTABLE WATER LINE CROSSINGS		INSTALL SLEEVING 10' MIN. BEYOND WATERLINE CROSSING. SLEEVE TO BE 2 TIMES THE PIPE DIAMETER.
	MIXING TANK FOR POTABLE AND RECYCLED WATER WITH AIR GAP DETAIL	1/I-3	INSTALL PER COUNTY OF SAN DIEGO REQUIREMNETS

CS	CROSS CONNECTION TEST STATION	WR-04/I-2
P	POTABLE WATER MAINLINE	
M	POTABLE WATER METER	
DO NOT DRINK	DO NOT DRINK SIGN	4 / I-3
	FIRE HYDRANT	
	POTABLE MAINLINE CROSSING	3/I-3
	POTABLE SERVICE LINE CROSSING	2/I-3

RECYCLED WATER NOTES:

1. ALL ABOVE GROUND RECYCLED FIXTURES: QUICK-COUPLERS, SPRAYERS, SPRINKLERS, VALVE BOXES, ETC. SHALL BE MAGENTA (RECLAIMED 'PURPLE').
2. THE LANDSCAPE CONTRACTOR SHALL LEAVE ALL POTABLE AND RECYCLED WATER FACILITIES EXPOSED FOR CITY OF ENCINITAS, SAN DIEGUITO WATER DISTRICT & COUNTY DEPARTMENT OF HEALTH INSPECTION PRIOR TO BACKFILLING IRRIGATION TRENCHES.
3. CONTRACTOR'S ATTENTION IS DIRECTED TO RECYCLED WATER SYSTEM REQUIREMENTS, FOR REQUIREMENTS FOR INSTALLATION OF RECLAIMED SYSTEMS. CONTRACTOR'S ATTENTION IS ALSO DIRECTED TO SAN DIEGUITO WATER DISTRICT STANDARDS PARAGRAPH 4.06.2.I. ALL REQUIREMENTS OF THESE DOCUMENTS SHALL BE MET.

CONSTRUCTION NOTES:

(1) EXISTING POTABLE WATER METERS & BACKFLOWS TO REMAIN.

(2) CONTRACTOR SHALL INTERCEPT EXISTING IRRIGATION MAINLINE & EXTEND TO NEW REMOTE CONTROL VALVES AS SHOWN. INSTALL NEW CONTROL WIRE FROM EXISTING CONTROLLER TO NEW VALVES & EXTEND COMMON WIRE FROM ADJACENT VALVES.

(2) CONTRACTOR SHALL INSTALL NEW MIXING TANK PER THE COUNTY OF SAN DIEGO DEPARTMENT OF ENVIRONMENTAL HEALTH DEPARTMENT'S REQUIREMNTS.

JPBLA
JAMES P. BENEDETTI
LANDSCAPE ARCHITECT
4403 MANCHESTER AVE. SUITE 201
ENCINITAS, CA 92024
760/479-0644 FAX 760/479-0645

LICENSED LANDSCAPE ARCHITECT
JAMES P. BENEDETTI 3058
Signature
Ren Date 9/30/10
Date 8/17/09
STATE OF CALIFORNIA

"AS-BUILT"
BY: DATE:
RCE: EXP:

IRRIGATION LEGEND & NOTES

REVISIONS	APPROVED	DATE	REFERENCES	DATE

BENCH MARK
BENCHMARK: -
DESCRIPTION: -
LOCATION: -
ELEV: 119.467 DATUM:

SCALE
HORIZONTAL 1"=30'
VERTICAL N/A

ENCINITAS FIRE PROTECTION DISTRICT
BY: DATE

DESIGNED BY | DRAWN BY | CHECKED BY

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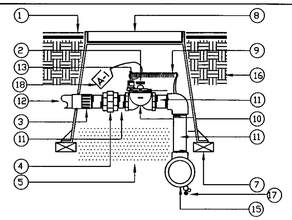
CITY OF ENCINITAS PUBLIC WORKS DEPARTMENT
RECYCLED WATER CONVERSION PLANS FOR:
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DRAWING NO.
I-2
SHEET 3 OF 5

LANDSCAPE ARCHITECT'S NAME: JPBLA, INC.
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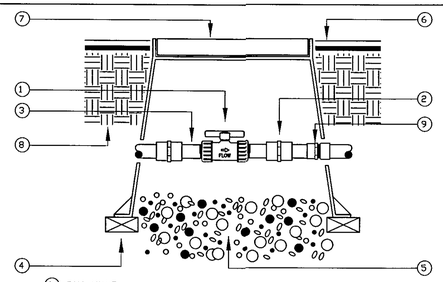
NTS

1 POINT OF CONNECTION (RECYCLED WATER)



1. FINISH GRADE (FLUSH IN TURF 1" IN GROUNDCOVER)
2. REMOTE CONTROL VALVE (SEE SPECS)
3. FEMALE ADAP. SCH. 40 PVC
4. SCH. 80 UNION
5. 1 CU. FT. PEA GRAVEL
6. IRRIGATION WATER MAINLINE
7. BRICK SUPPORTS
8. PLASTIC VALVE BOX (PURPLE 12" LID) HEAT 2' BRAND "RCV" A & CONTROLLER STATION NO. ONTO LID
9. CONTROL WIRES; BUNDLE AND TAPE (W/ 4' MIN. EXTRA WIRE)
10. CONTROL VALVE
11. SCH. 80 PVC NIPPLE (TYP.)
12. PVC NON-PRESSURE PIPE (SEE SPECS)
13. SOLENOID
14. PVC PRESSURE PIPE
15. PVC SCH 40 TEE (SSS) OR ELL (SS) ON MAINLINE
16. UNDISTURBED/COMPACTED SUBGRADE
17. WIRES BUNDLED UNDER MAINLINE TYP.
18. CHRITY'S ID TAG WITH STATION NO.

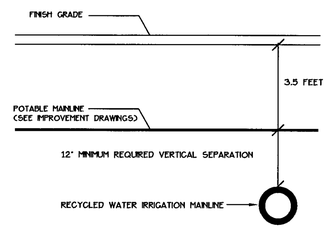
5 REMOTE CONTROL VALVE



1. BALL VALVE
2. PVC SCH 80 UNION
3. SHORT PVC SCH. 80 NIPPLE (LENGTH AS REQ'D)
4. BRICK OR CONC. SUPPORTS ON COMPACTED SUBGRADE
5. 1 CU. FT. (MIN.) PEA GRAVEL SUMP
6. FINISH GRADE IN TURF 1" IN G.C.
7. VALVE BOX W/ 2" BRANDED BV
8. COMPACTED SUBGRADE
9. PVC SCH 40 FEMALE ADAPTER (TYP.)

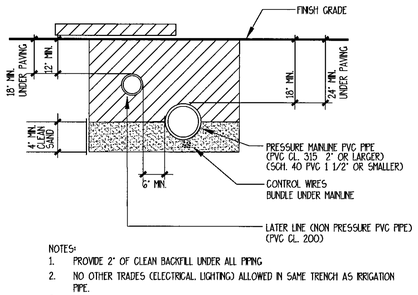
6 BALL VALVE

NTS



NOTE:
ALL RECYCLED WATER IRRIGATION PIPING AND SLEEVES SHALL BE PURPLE AND LABLED AS SPECIFIED IN:

7 TRENCHING



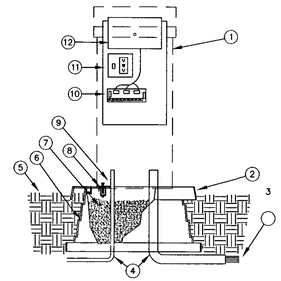
NOTES:
1. PROVIDE 2' OF CLEAN BACKFILL UNDER ALL PIPING
2. NO OTHER TRADES (ELECTRICAL, LIGHTING) ALLOWED IN SAME TRENCH AS IRRIGATION PIPE.
3. PROVIDE PVC SLEEVES FPR ALL WIRING AND PIPING UNDER PAVING.
4. NO STAKING (VERTICALLY) OF PIPES IN SAME TRENCH.

8 WIRE CONNECTOR

STEP:

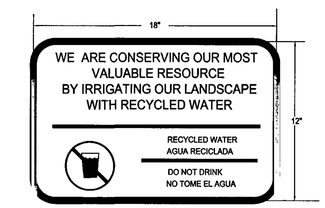
1. STRIP WIRES APPROX. 5/8" FROM END.
2. TWIST CONNECTOR UNTIL WIRE END REACHES BOTTOM.
3. MIX CONTENTS OF SEALING PACK. CUT 1/2" OFF END OF PACK AND INSERT CONNECTOR TO OPPOSITE END.
4. WRAP OPEN END OF SEALING PACK WITH TAPE. ALLOW TO SET UNTIL RESIN JELLS.

9 ENCLOSURE MOUNTING PAD



1. UNITED GREEN TECH NEMA 3R RAINPROOF ENCLOSURE (UL LISTED)
2. QUICKPAD – 3/16" MINIMUM THICKNESS ALUMINUM POWDERCOATED PREFORMED PAD, FOR PACIFIC TECHNICAL SERVICES ASSEMBLIES
3. DIRECT BURIAL CONTROL WIRES TO CONTROL VALVES.
4. PVC LONG SWEEP ELLS, AMOUNT AND SIZE AS REQUIRED
5. FINISH GRADE– 2" BELOW TOP OF QUICKPAD
6. QUICK PAD MOUNTING BASE
7. PEA GRAVEL 3/4 FULL INSIDE BASE.
8. QUICK PAD MOUNTING BRACE
9. 120-VOLT SERVICE IN CONDUIT.
10. PACIFIC TECHNICAL SERVICES STAINLESS STEEL BACKBOARD AND TERMINAL STRIP
11. POWER SWITCH/GFI RECEPTACLE
12. AUTOMATIC CONTROLLER.

NTS



'DO NOT DRINK' SIGN

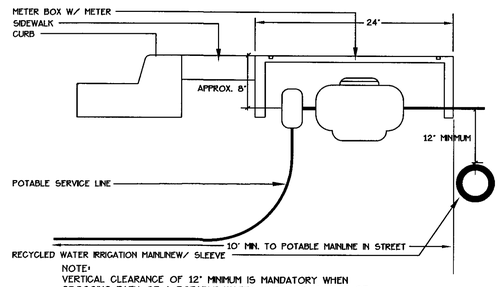
N.T.S.

1 POINT OF CONNECTION (RECYCLED WATER)

2 POTABLE SERVICE LINE CROSSING

3 POTABLE MAINLINE CROSSING

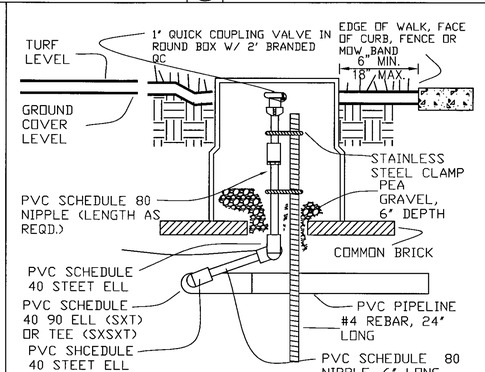
4 DO NOT DRINK SIGN



NOTE:
VERTICAL CLEARANCE OF 12" MINIMUM IS MANDATORY WHEN CROSSING PATH OF A POTABLE WATER LINE. INSTALLATION OF RECYCLED WATER IRRIGATION MAINLINE 24" FROM FACE OF SIDEWALK WILL PROVIDE THE NECESSARY 10' HORIZONTAL CLEARANCE FROM POTABLE MAINLINE IN THE STREET.

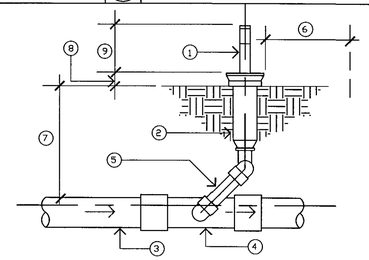
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10 QUICK COUPLER



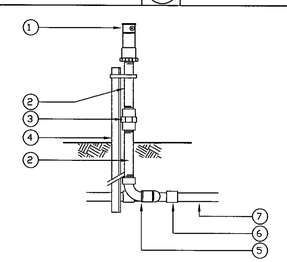
QUICK COUPLER VALVES SHALL BE OF A TYPE APPROVED FOR RECYCLED WATER USE.

11 POP-UP SPRAY HEAD



1. NOZZLE IN POP-UP POSITION
2. POP-UP BODY
3. PVC LATERAL LINE (SEE SPECS)
4. PVC SCH 40 TEE (SST) OR ELL (ST)
5. SWING JOINT ASSEMBLY (1 SCH 80 NIPPLE AND 3 SCH. 40 STREET ELLS)
6. 2" MIN. FROM FIXED IMPROVEMENTS (CURBS, WALKS, ETC.)
7. SEE SPECS
8. AT FINISH GRADE IN TURF TURF. 1" IN SHRUB AREAS
9. SEE LEGEND

12 SPRAY HEAD ON RISER



1. SHRUB SPRAY HEAD W/ ADAPTER (ADJUST RISER PERP. TO SLOPE)
2. PVC SCH 80 RISER / NIPPLE (TYP.)
3. ANTI-DRAIN SPRING CHECK VALVE
4. #3 REBAR W/ GALV. CLAMPS
5. SWING JOINT ASSEMBLY (2 SCH. 40 STREET ELLS)
6. PVC SCH 40 TEE (SST) OR ELL (ST)
7. PVC NON-PRESSURE (LATERAL) LINE (SEE SPECS)

JPBLA
JAMES P. BENEDETTI LANDSCAPE ARCHITECT
4403 MANCHESTER AVE. SUITE 201
ENCINITAS, CA 92024
760/479-0644 FAX 760/479-0645

LICENSED LANDSCAPE ARCHITECT JAMES P. BENEDETTI 3058 Signature Ren Date 9/30/10 Date 8/17/09 STATE OF CALIFORNIA

"AS-BUILT"
BY: _____ DATE:
RCE: _____ EXP:

IRRIGATION DETAILS

REVISIONS	APPROVED	DATE	REFERENCES	DATE

BENCH MARK
BENCHMARK: -
DESCRIPTION: -
LOCATION: -
ELEV: 119.467 DATUM:

SCALE
HORIZONTAL 1"=30'
VERTICAL N/A

ENCINITAS FIRE PROTECTION DISTRICT
BY: _____ DATE

DESIGNED BY	DRAWN BY	CHECKED BY

PLANS PREPARED UNDER THE SUPERVISION OF
JAMES P. BENEDETTI (NAME)
DATE: 8/17/09
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CITY OF ENCINITAS PUBLIC WORKS DEPARTMENT
RECYCLED WATER CONVERSION PLANS FOR:
DRAMM & ECHTER, INC.
1150 Quail Gardens Drive, Encinitas, CA

DRAWING NO.
I-3
SHEET 4 OF 5

LANDSCAPE ARCHITECT'S NAME: JPBLA, INC.
PHONE NO.: (760) 479-0644

IRRIGATION 02810-11 SECTION 02810
IRRIGATION PART 1 - GENERAL
1.01 GENERAL CONDITIONS:
A. THE GENERAL CONDITIONS, SPECIAL CONDITIONS, AND DIVISION 1 ARE AN ADDED PART OF THIS SECTION AND THE CONTRACT FOR THIS WORK AND APPLY TO THIS SECTION AS FULLY AS IF REPEATED HEREIN.
1.02 SCOPE:
A. THE WORK INCLUDES ALL SERVICES, LABOR, MATERIALS, TRANSPORTATION AND EQUIPMENT NECESSARY TO PERFORM THE WORK INDICATED ON THE DRAWINGS AND AS SPECIFIED. THE GENERAL CONDITIONS AND DIVISION 1 APPLY TO THIS SECTION AS FULLY AS IF REPEATED HEREIN.
1. RELATED WORK:
(A) LANDSCAPING SECTION (02900)
1.03 SUBMITTALS:
A. SUBMIT A LIST OF ALL IRRIGATION EQUIPMENT TO BE USED, MANUFACTURER'S BROCHURES, MAINTENANCE MANUALS, GUARANTEES AND OPERATING INSTRUCTIONS.
1.04 GUARANTEE:
A. FURNISH GUARANTEE IN ACCORDANCE WITH THE GENERAL CONDITIONS, FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE - AT THE CONCLUSION OF THE MAINTENANCE PERIOD - ON COMPLETE WATER IRRIGATION SYSTEM, INCLUDING NONSETTLING OF THE BACKFILL IN TRENCHES WHICH, IF OCCURS, SHALL BE CORRECTED, INCLUDING REPAIRS AND/OR REPLACEMENT OF ANY MATERIAL DAMAGED THEREBY OR THEREFROM.
1.05 OBSERVATION:
A. IN ALL CASES WHERE OBSERVATION OF THE SPRINKLER SYSTEM WORK IS REQUIRED AND/OR WHERE PORTIONS OF THE WORK ARE SPECIFIED TO BE PERFORMED UNDER THE DIRECTION AND/OR OBSERVATION OF THE ARCHITECT OR HIS REPRESENTATIVE, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AT LEAST THREE (3) WORKING DAYS IN ADVANCE OF THE TIME SUCH INSPECTION AND/OR DIRECTION IS REQUIRED.
B. OBSERVATION WILL BE REQUIRED FOR THE FOLLOWING PARTS OF THE WORK:
1. UPON INSTALLATION AND TESTING OF MAIN LINES AND LATERAL LINES; WHEN PIPES ARE LAID AND ARE TO BE SUBMITTED TO PRESSURE TESTS. DO NOT COVER ANY LINES UNTIL THEY HAVE BEEN OBSERVED AND APPROVED.
2. UPON INSTALLATION AND TESTING OF VALVES, QUICK COUPLERS, BACKFLOW PREVENTER DEVICE, AUTOMATIC CONTROLLERS, AND CONTROL VALVES AND WIRES.
3. WHEN THE SPRINKLER SYSTEM IS COMPLETED, THE CONTRACTOR, IN THE PRESENCE OF THE ARCHITECT, SHALL PERFORM A COVERAGE TEST TO DETERMINE IF THE COVERAGE OF WATER AFFORDED THE LAWN AND PLANTING AREAS IS COMPLETE AND ADEQUATE. THE CONTRACTOR SHALL FURNISH ALL MATERIALS AND PERFORM ALL WORK REQUIRED TO CORRECT ANY INADEQUACIES TO COVER.
4. FINAL OBSERVATION AND PERFORMANCE TEST SHALL BE AT THE SAME TIME AS THE FINAL OBSERVATION OF THE LANDSCAPE WORK.
1.06 TESTING: ALL PVC MAIN SHALL BE SUBJECTED TO A PRESSURE TEST OF 125 PSI FOR A PERIOD OF FOUR HOURS. ALL TESTING SHALL BE IN THE PRESENCE OF THE ARCHITECT. APPROVAL SHALL BE RECEIVED BEFORE BACKFILLING ANY TRENCH. DO NOT COVER ANY LINES UNTIL THEY HAVE BEEN OBSERVED AND APPROVED. 1.07 RECORD DRAWINGS:
A. BEFORE FINAL ACCEPTANCE OF WORK, THE CONTRACTOR SHALL PROVIDE A RECORD SET OF DRAWINGS SHOWING THE SPRINKLER SYSTEM WORK.
1. ANY CHANGES IN LOCATION OF ITEMS OR TYPE OF INSTALLATIONS FROM THAT SHOWN ON DRAWINGS SHALL BE SO INDICATED ON THE RECORD DRAWINGS.
2. VALVES SHALL BE NUMBERED AND CORRESPONDING NUMBERS SHALL BE SHOWN ON THE RECORD DRAWINGS.
3. ALL REMOTE CONTROL VALVES, SHUT-OFF VALVES, QUICK COUPLER VALVES SHALL BE LOCATED BY MEASURE DIMENSIONS. DIMENSIONS SHALL BE GIVEN TO PERMANENT OBJECTS AND SHALL BE TO THE NEAREST ONE-HALF FOOT.
4. ON THE INSIDE SURFACE OF THE COVER OF EACH AUTOMATIC CONTROLLER, PREPARE AND MOUNT A CHART SHOWING THE VALVES AND SPRINKLER HEADS SERVICED BY THAT PARTICULAR CONTROLLER. ALL VALVES SHALL BE NUMBERED TO MATCH THE OPERATION SCHEDULE AND THE DRAWINGS AND SHALL BE COLOR CODED FOR EACH SEPARATE AREA SERVICED BY EACH VALVE. ONLY THOSE AREAS CONTROLLED BY THE CONTROLLER SHALL BE SHOWN. THIS CHART SHALL BE A PLOT PLAN, ENTIRE OR PARTIAL, SHOWING BUILDING, WALKS, ROADS AND WALLS. A PHOTOSTATIC PRINT OF THIS PLAN, REDUCED AS NECESSARY AND LEGIBLE IN ALL DETAILS, SHALL BE MADE TO A SIZE THAT WILL FIT INTO THE CONTROLLER COVER. THIS PRINT SHALL BE APPROVED BY THE ARCHITECT AND SHALL BE HERMETICALLY SEALED BY PLASTIC. THIS SHALL THEN BE SECURED TO THE INSIDE OF THE COVER.
5. IMMEDIATELY UPON INSTALLATION OF ANY BURIED PIPE OR EQUIPMENT, THE CONTRACTOR SHALL INDICATE ON THE DRAWINGS THE LOCATIONS OF SAID EQUIPMENT. DIMENSIONS SHALL BE GIVEN FROM PERMANENT OBJECTS SUCH AS BUILDINGS, SIDEWALKS, CURBS AND DRIVEWAYS.
1.08 GENERAL REQUIREMENTS:
A. CODE REQUIREMENTS SHALL BE THOSE OF STATE AND MUNICIPAL CODES AND REGULATIONS LOCALLY GOVERNING THIS WORK, PROVIDING THAT ANY REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS, NOT CONFLICTING THEREWITH BUT EXCEEDING THE CODE REQUIREMENTS SHALL GOVERN, UNLESS WRITTEN PERMISSION TO THE CONTRARY IS GRANTED BY THE DISTRICT.
B. EXTREME CARE SHALL BE EXERCISED IN EXCAVATING AND WORKING IN THE AREA DUE TO EXISTING UTILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES CAUSED BY HIS OPERATIONS.
C. CONNECTIONS SHALL BE MADE AT APPROXIMATELY THE LOCATIONS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR MINOR CHANGES CAUSED BY ACTUAL SITE CONDITIONS.
D. LANDSCAPE HEADERS AND MOWING STRIPS SHALL BE IN PLACE BEFORE INSTALLATION OF SPRINKLER SYSTEM.
E. SCALED DIMENSIONS ARE APPROXIMATE. BEFORE PROCEEDING WITH ANY WORK, THE CONTRACTOR SHALL CAREFULLY CHECK AND VERIFY ALL DIMENSIONS.
F. PLAN LOCATIONS OF HEADS, VALVES, CONTROLLER AND PIPE LINES ARE DIAGRAMMATIC AND INDICATE THE SPACING AND RELATIVE LOCATIONS OF ALL INSTALLATIONS.
G. ALL LINES SHALL HAVE A MINIMUM CLEARANCE OF SIX (6) INCHES FROM EACH OTHER, AND FROM LINES OF OTHER TRADES. PARALLEL LINES SHALL NOT BE INSTALLED DIRECTLY OVER ONE ANOTHER.
H. DIELECTRIC BUSHINGS SHALL BE USED IN ANY CONNECTIONS WITH PIPING OF DISSIMILAR METAL MATERIALS.
I. POINT OF CONNECTION SHALL BE APPROXIMATELY AS SHOWN ON DRAWINGS. CONNECT NEW UNDERGROUND PIPING AND VALVES AND PROVIDE ALL FLANGES, ADAPTERS OR OTHER NECESSARY FITTINGS FOR CONNECTION.
J. PERMISSION TO SHUT OFF ANY EXISTING IN-USE WATER LINES MUST BE OBTAINED 48 HOURS IN ADVANCE, IN WRITING FROM THE OWNER. THE CONTRACTOR SHALL RECEIVE INSTRUCTIONS FROM THE OWNER, AS TO THE EXACT LENGTH OF TIME OF EACH SHUT-OFF.
K. CONTRACTOR SHALL ACQUAINT HIMSELF WITH ALL SITE CONDITIONS.
PART 2 - PRODUCTS
2.01 MATERIALS:
A. PIPING PIPE SIZES SHOWN ARE NOMINAL INSIDE DIAMETER UNLESS OTHERWISE NOTED.
1. PVC PRESSURE MAINLINE PIPE FITTINGS: ALL BURIED PRIVATE PIPING IN THE RECLAIMED WATER SYSTEM SHALL BE INSTALLED WITH WARNING TAPE IDENTIFYING IT AS RECLAIMED WATER WITH THE EXCEPTION OF INTERMITTENT PRESSURE LINES. INTERMITTENT PRESSURE LINES (LINES ON THE DOWNSTREAM SIDE OF A CONTROLLER VALVE THAT WILL NOT BE SUBJECT TO CONSTANT PRESSURE) MAY BE EXCEPTED AS LONG AS IT IS APPARENT, DUE TO LINE SIZE AND LOCATION AS DETERMINED SOLELY BY THE DISTRICT ENGINEER OR INSPECTOR, THAT THE LINES ARE PART OF A RECLAIMED WATER SPRINKLER IRRIGATION SYSTEM. STENCILED PIPE, AS SPECIFIED BELOW, WILL BE ACCEPTED IN CONJUNCTION WITH WARNING TAPE.
(A) PRESSURE MAINLINE PIPING FOR SIZES 2"AND LARGER SHALL BE PVC CLASS 315, AND SHALL BE PURPLE.
(B) PIPE SHALL BE MADE FROM AN NSF APPROVED TYPE 1, GRADE 1, PVC COMPOUND CONFORMING TO ASTM RESIN SPECIFICATIONS "D1784". ALL PIPE MUST MEET REQUIREMENTS AS SET FORTH IN FEDERAL SPECIFICATIONS PS-22-70, WITH AN APPROPRIATE STANDARD DIMENSION (S.D.R.) - (SOLVENT WELD PIPE).
(C) PRESSURE MAINLINE PIPING FOR SIZES 1-1/2" AND SMALLER SHALL BE PVC SCHEDULE 40 WITH SOLVENT WELDED JOINTS, AND SHALL BE PURPLE.
(D) PIPE SHALL BE MADE FROM NSF APPROVED TYPE 1, GRADE 1, PVC COMPOUND CONFORMING TO THE ASTM RESIN SPECIFICATIONS "D1785". ALL PIPE MUST MEET REQUIREMENTS AS SET FORTH IN FEDERAL SPECIFICATIONS PS-21-70.
(E) PVC SOLVENT-WELD FITTINGS SHALL BE SCHEDULE 40, 1-2, 11-1 NSF APPROVED CONFORMING TO ASTM TEST PROCEDURE D2466.
(F) SOLVENT CEMENT AND PRIMER FOR PVC SOLVENT WELD PIPE AND FITTINGS SHALL WELD-ON' P-70 PRIMER & 711 MEDIUM SET GRAY CEMENT, OR APPROVED SUBSTITUTION.
(G) ALL PVC PIPE MUST BEAR THE FOLLOWING MARKINGS.
1. MANUFACTURER'S NAME
2. NOMINAL PIPE SIZE
3. SCHEDULE OR CLASS
4. PRESSURE RATING IN P.S.I.
5. NSF (NATIONAL SANITATION FOUNDATION) APPROVAL
6. DATE OF EXTRUSION
(H) ALL FITTINGS SHALL BEAR THE MANUFACTURER'S NAME OF TRADEMARK, MATERIAL DESIGNATION, SIZE, APPLICABLE I.P.S. SCHEDULE AND NSF SEAL OF APPROVAL. A.C.P., 4" AND ABOVE, SHALL HAVE THE WORDS "RECLAIMED WATER" STENCILED IN 2-INCH GREEN LETTERS ON BOTH SIDES OF THE PIPE IN AT LEAST THREE PLACES IN A 13-FOOT SECTION OF PIPE (TOTAL OF SIX PLACES PER SECTION OF PIPE). ALL PIPE SHALL HAVE STENCILING APPEARING ON BOTH SIDES OF THE PIPE WITH THE MARKING "RECLAIMED WATER" IN 5/8" LETTERS REPEATED EVERY 12 INCHES.
2. PVC NON-PRESSURE LATERAL LINE PIPING
(A) NON-PRESSURE BURIED LATERAL LINE PIPING SHALL BE PVC SCHEDULE 40 WITH SOLVENT-WELD JOINTS, AND SHALL BE PURPLE.
(B) PIPE SHALL BE MADE FROM NSF APPROVED, TYPE 1, GRADE 11 PVC COMPOUND CONFORMING TO ASTM SPECIFICATIONS "D1784". ALL PIPE MUST MEET REQUIREMENTS SET FORTH IN FEDERAL SPECIFICATION PS-22-70 WITH AN APPROPRIATE STANDARD DIMENSION RATIO.
(C) EXCEPT AS NOTED IN PARAGRAPHS (A) AND (B) OF SECTION 2.01.A.1(A) AND (B), ALL REQUIREMENTS FOR NON-PRESSURE LATERAL LINE PIPE AND FITTINGS SHALL BE THE SAME AS FOR SOLVENT-WELD PRESSURE MAINLINE PIPE AND FITTINGS AS SET FORTH IN SECTION 2.01.A.1 OF THESE SPECIFICATIONS, (PRIMER NOT REQUIRED).
ALL UNSIZED END RUN LATER LINES SHALL BE ¾"PIPE.
3. BRASS PIPE SHALL BE IPS STANDARD WEIGHT 125 POUNDS, 85% RED BRASS.
B. FITTINGS AND CONNECTIONS:
1. POLYVINYL CHLORIDE PIPE FITTINGS AND CONNECTIONS: TYPE II, GRADE 1, SCHEDULE 40, HIGH IMPACT MOLDED FITTINGS, MANUFACTURED FROM VIRGIN COMPOUNDS AS SPECIFIED FOR PIPING, TAPERED SOCKET OR MOLDED THREAD TYPE, SUITABLE FOR EITHER SOLVENT WELD OR SCREWED CONNECTIONS. MACHINE THREADED FITTINGS AND PLASTIC SADDLE AND FLANGE FITTINGS ARE NOT ACCEPTABLE. FURNISH FITTINGS PERMANENTLY MARKED WITH FOLLOWING INFORMATION: NOMINAL PIPE SIZE, TYPE AND SCHEDULE OF MATERIAL, AND NATIONAL SANITATION FOUNDATION (NSF) SEAL OF APPROVAL. PVC FITTING SHALL CONFORM TO ASTM D2464 AND D2466.
2. BRASS PIPE FITTINGS AND CONNECTIONS: STANDARD 125 POUND CLASS 85% RED BRASS FITTINGS AND CONNECTIONS.
C. AUTOMATIC CONTROL WIRE:
1. ELECTRIC WIRING RUNNING FROM CONTROLLER TO THE AUTOMATIC CONTROL VALVES SHALL BE NO. 14, SOLID, SINGLE CONDUCTOR, COPPER WIRE, 4/64 INCH INSULATION, 4/64 INCH NEOPRENE JACKET, STYLE BR (DIRECT BURIAL) OR EQUAL, COLOR CODE WIRES TO EACH VALVE, COMMON WIRE SHALL BE WHITE.
D. AUTOMATIC CONTROLLER:
1. CONTROLLER SHALL BE PROTECTED IN PLACE.
E. CONTROL VALVES:
1. REMOTE CONTROL VALVES SHALL BE OF ALL PLASTIC BODY. VALVE SHALL BE PROVIDED WITH AN ADJUSTABLE FLOW CONTROL STEM AND SHALL BE OPERABLE MANUALLY WITHOUT ELECTRICITY.
F. VALVE BOX:
1. FOR REMOTE CONTROL VALVES 9-1/2" X 16" X 11" RECTANGULAR BOX MANUFACTURED BY CARSON INDUSTRIES #14129-12B WITH PURPLE BOLT DOWN COVER OR APPROVED EQUAL.
2. FOR BALL VALVE: 10" X 10'1/4" ROUND, CARSON INDUSTRIES #910-12B WITH PURPLE BOLT COVER OR APPROVED EQUAL. EXTENSION SLEEVE TO BE PVC-6" MINIMUM SIZE.
G. ANTI-DRAIN EXCESS FLOW VALVES:
1. ANTI-DRAIN EXCESS FLOW VALVES SHALL BE MAINTENANCE FREE AND CONSTRUCTED OF HEAVY DUTY TYPE 1 PVC WITH STAINLESS STEEL AND NEOPRENE INTERNAL PARTS. VALVES SHALL BE ADJUSTABLE FROM 5 FEET TO 40 FEET OF HEAD AND SHALL PREVENT ALL LOW HEAD DRAINAGE QUICKLY AND POSITIVELY AFTER RVC SHUT-OFF. VALVES SHALL HAVE A FEMALE IPS THREADED INLET AND OUTLET AND BE OF THE SAME SIZE AS THE RISER. THE ANTI-DRAIN VALVES SHALL BE VALCON #ADV- X.S. OR APPROVED EQUAL.
H. SPRINKLER HEADS SHALL BE AS REQUIRED ON THE DRAWINGS OR APPROVED EQUAL.
I. QUICK COUPLER ASSEMBLY:
1. NON-POTABLE QUICK COUPLER VALVE:
(A) QUICK COUPLER VALVE SHALL BE 1" SIZE:
LOCKING CAP, RUBBER COVER WITH NON-POTABLE WARNING LABEL WITH ACME THREAD TYPE.
(B) QUICK COUPLER KEY SHALL BE OF BRASS/BRONZE WITH A HOSE BIB ASSEMBLY.
J. CHECK VALVES SHALL BE OF BRASS OR BRONZE, VERTICAL SPRING-LOADED AND SWING CHECK.
K. BALL VALVES:
1. PRODUCT: 1" - 2" SIZE (KING BROS. LO-TORQUE BALL VALVE MODELS LT. 1000-T THRU LT.2000-T) 2" - 4" SIZE (KING BROS. BLOCK TRUE UNION BALL VALVE MODELS VALENCIA, CALIFORNIA, 91384 PHONE: (800)541-2672 OR (805)257-3262.
L. CONCRETE FOOTINGS SHALL BE 2,000 PSI CONCRETE AT 28 DAYS.
M. BACKFILL SHALL BE CLEAN FILL SOIL.
N. CONTRACTOR SHALL PROVIDE TO THE OWNER:
1. TWO (2) CONTROL VALVE KEYS.
2. TWO (2) WRENCHES FOR REMOVING EACH DIFFERENT TYPE OF SPRINKLER HEAD.
3. ONE (1) 48" TEE WRENCH FOR OPERATING GATE VALVES.
4. SIX (6) QUICK COUPLER KEYS AND SIX (6) HOSE BIB ASSEMBLIES.
PART 3 - EXECUTION 3.01 GENERAL REQUIREMENTS:
A. LOCATIONS ON DRAWINGS ARE DIAGRAMMATIC AND APPROXIMATE ONLY, AND SHALL BE CHANGED AND ADJUSTED AS NECESSARY AS DIRECTED TO MEET EXISTING CONDITIONS AND OBTAIN COMPLETE WATER COVERAGE. LOCATE AND STAKE ALL WORK AND OBTAIN APPROVAL OF THE ARCHITECT BEFORE INSTALLATIONS.
B. INSTALL AND EXTEND SYSTEM AS SHOWN ON THE DRAWINGS, AND AS NECESSARY TO CARRY OUT THE INTENT OF THE DRAWINGS AND SPECIFICATIONS.
C. LOCATE LINES, VALVES AND OTHER UNDERGROUND UTILITIES AND RECEIVE THE APPROVAL OF THE ARCHITECT BEFORE DIGGING TRENCHES.
3.02 INSTALLATION OF IRRIGATION SYSTEM:
A. EXCAVATION AND BACKFILLING OF TRENCHES:
1. EXCAVATE TRENCHES, PREPARE SUBGRADE, AND BACKFILL TO LINE AND GRADE WITH SUFFICIENT ROOM FOR PIPE FITTINGS, TESTING AND INSPECTING OPERATIONS. DO NOT BACKFILL UNTIL THE PIPE SYSTEM HAS BEEN SUBJECTED TO A HYDROSTATIC TEST AS SPECIFIED.
2. DEPTH OF TRENCH: POLYVINYL CHLORIDE PRESSURE LINE 30" MINIMUM (3 IN. OR LARGER) POLYVINYL CHLORIDE PRESSURE LINE 18" MINIMUM (2 1/2 IN. AND SMALLER) POLYVINYL CHLORIDE NON-PRESSURE LINE 12" MINIMUM
3. TRENCHING THROUGH AREAS WHERE TOPSOIL HAS BEEN SPREAD:
(A) DEPOSIT TOPSOIL ON ONE SIDE OF TRENCH AND SUBSOIL ON OPPOSITE SIDE.
4. SUBSOIL SHALL BE FREE OF ALL ROCKS OVER ONE (1) INCH IN DIAMETER, DEBRIS, AND LITTER, PRIOR TO USE AS BACKFILL WHERE SO INDICATED ON DETAIL.
5. REPAIR ANY LEAKS AND REPLACE ALL DEFECTIVE PIPE FITTINGS UNTIL LINES MEET TEST REQUIREMENTS. DO NOT COVER ANY LINES UNTIL THEY HAVE BEEN INSPECTED AND APPROVED FOR TIGHTNESS, QUALITY OF WORKMANSHIP AND MATERIALS.
6. BACKFILL TRENCHES, AFTER APPROVAL OF PIPING, WITH SUITABLE AND APPROVED MATERIAL, TAMPING SOIL AROUND PIPE AND THOROUGHLY COMPACTING ALL TRENCH FILLS UNTIL 90% COMPACTION HAS BEEN ACHEIVED.
7. BACKFILL MATERIAL SHALL BE AN APPROVED SOIL, FREE FROM ROCKS AND CLODS.
B. INSTALLATION OF POLYVINYL CHLORIDE PIPE:
1. BECAUSE OF THE NATURE OF PLASTIC PIPE AND FITTINGS, EXERCISE CAUTION IN HANDLING, LOADING AND STORING, TO AVOID DAMAGE.
2. THE PIPE AND FITTINGS SHALL BE STORED UNDER COVER UNTIL USING, AND SHALL BE TRANSPORTED IN A VEHICLE WITH A BED LONG ENOUGH TO ALLOW THE LENGTH OF PIPE TO LAY FLAT SO AS NOT TO BE SUBJECTED TO UNDUE BENDING OR CONCENTRATED EXTERNAL LOAD AT ANY POINT.
3. ANY PIPE THAT HAS BEEN DENTED OR DAMAGED SHALL BE DISCARDED UNTIL SUCH DENTED OR DAMAGED SECTION IS CUT AND REJOINED WITH A COUPLING.
4. TRENCH DEPTH SHALL BE AS SPECIFIED ABOVE FROM THE FINISH GRADE TO THE TOP OF THE PIPE. THE BOTTOM OF THE TRENCH SHALL BE FREE OF ROCKS, CLODS, AND OTHER SHARP-EDGED OBJECTS.
5. PIPE ENDS AND FITTINGS SHALL BE WIPED WITH MEK, OR EQUAL, BEFORE WELDING SOLVENT IS APPLIED. WELDED JOINTS SHALL BE GIVEN A MINIMUM OF 15 MINUTES TO SET BEFORE MOVING OR HANDLING. ALL FIELD CUTS SHALL BE BEVELED TO REMOVE BURRS AND EXCESS BEFORE FITTING AND GLUING TOGETHER.
6. PIPE SHALL BE SNAKED FROM SIDE-TO-SIDE OF TRENCH BOTTOM TO ALLOW FOR EXPANSION AND CONTRACTION.
7. CENTER LOAD PIPE WITH SMALL AMOUNT OF BACKFILL TO PREVENT ARCHING AND SLIPPING UNDER PRESSURE. LEAVE JOINTS EXPOSED FOR INSPECTION DURING TESTING.
8. NO WATER SHALL BE PERMITTED IN THE PIPE UNTIL INSPECTIONS HAVE BEEN COMPLETED AND A PERIOD OF AT LEAST 24 HOURS HAS ELAPSED FOR SOLVENT WELD SETTING AND CURING.
9. PLASTIC TO METAL JOINTS SHALL BE MADE WITH PLASTIC MALE ADAPTERS, METAL NIPPLE HAND TIGHTENED, PLUS ONE TURN WITH A STRAP WRENCH.
10. PLASTIC TO PLASTIC JOINTS: SOLVENT-WELD, USING SOLVENT RECOMMENDED BY PIPE MANUFACTURER ONLY.
11. SOLVENT-WELD JOINTS: ASSEMBLE PER MANUFACTURER'S RECOMMENDATION.
12. THRUST BLOCK SHALL BE INSTALLED AS PER CITY STANDARDS.
C. INSTALLATION OF BRASS PIPE:
1. CUT BRASS PIPING BY POWER HACKSAW, CIRCULAR CUTTING MACHINE USING AN ABRASIVE WHEEL, OR HAND HACKSAW. CUT NO PIPING WITH METALLIC WHEEL CUTTER OF ANY DESCRIPTION. REAM AND REMOVE ROUGH EDGES OR BURRS SO MOOTH AND UNOBSTRUCTED FLOW IS OBTAINED.
2. CAREFULLY AND SMOOTHLY PLACE ON MALE THREAD ONLY. TIGHTEN SCREWED JOINTS WITH TONGS OR WRENCHES. CAULKING IS NOT PERMITTED.
D. REMOTE CONTROL WIRING:
1. DIRECT BURIAL CONTROL WIRE SIZES: AS SHOWN AND SPECIFIED HEREIN BEFORE.
2. PROVIDE ONE CONTROL WIRE AND ONE COMMON GROUND WIRE TO SERVICE EACH VALVE IN SYSTEM. PROVIDE 4-FOOT MINIMUM EXPANSION LOOP AT EACH VALVE TO PERMIT REMOVAL AND MAINTENANCE OF VALVES.
3. INSTALL CONTROL WIRES AND IRRIGATION PIPING IN COMMON TRENCHES WHEREVER POSSIBLE.
4. CONTROL WIRE SPLICES: ALLOW ONLY ON RUNS OF MORE THAN 300 FEET, SPLICES AS FOLLOWS:
(1) STRIP OFF MINIMUM OF 2-1/2 INCHES OF INSULATION FROM EACH WIRE.
(2) TWIST ON SCOTCHLOCK ELECTRICAL SPRING CONNECTOR, MINIMUM FOUR COMPLETE TURNS.
(3) SEAL CONNECTOR IN EPOXY RESIN.
(4) TAPE COMPLETED SPLICE WITH SCOTCH 33 ELECTRICAL TAPE.
5. NUMBERING AND TAGGING: IDENTIFY DIRECT BURIAL CONTROL WIRES FROM AUTOMATIC VALVES TO TERMINAL STRIPS OF CONTROLLER AT TERMINAL STRIP BY TAGGING WIRE WITH NUMBER OF CONNECTED VALVE.
E. REMOTE CONTROL VALVES:
1. INSTALL REMOTE CONTROL VALVES AS SHOWN ON DETAIL. INSTALL NO MORE THAN ONE VALVE PER BOX.
G. VALVE BOX:
1. INSTALL VALVE BOXES AS SHOWN ON DETAIL. INSTALL NO MORE THAN ONE VALVE PER BOX. STENCIL VALVE NUMBER AND CONTROLLER LETTER ON UNDERSIDE OF VALVE BOX LID.
H. SPRINKLER HEADS:
1. ALL SPRINKLER HEADS SHALL BE INSTALLED AS PER DETAILS SHOWN.
2. NOZZLE SIZE OF ALL HEADS SHALL BE ADJUSTED TO SUIT ANY PARTICULAR CONDITIONS OF THE AREA. THIS SHALL BE DONE AFTER THE SYSTEM HAS BEEN THOROUGHLY TESTED, IMMEDIATELY AFTER WRITTEN NOTIFICATION BY THE ARCHITECT TO DO SO.
I. QUICK COUPLER ASSEMBLY:
1. INSTALL ALL QUICK COUPLERS AS INDICATED ON DRAWINGS AND AS DIRECTED. SET ALL VALVES PLUMB AND TRUE TO FINISH GRADE AND A MAXIMUM OF 12 INCHES FROM PAVING, WALKS, HEADERS OR CURBS, AND AS SHOWN ON PLANS AND AS DIRECTED.
J. BALL VALVES:
1. INSTALL WHERE SHOWN AS DETAILED.
K. BACKFLOW PREVENTER:
1. BACKFLOW PREVENTER ASSEMBLY SHALL BE INSTALLED IN ACCORD WITH MANUFACTURER'S SPECIFICATIONS, LOCATED AND AS DIRECTED ON DRAWINGS, AND SHALL CONFORM TO ALL APPLICABLE CODE AND ORDINANCE REQUIREMENTS.
2. EXACT LOCATION AND POSITIONING SHALL BE VERIFIED ON THE SITE BY THE ARCHITECT.
L. PRESSURE REGULATOR SHALL BE INSTALLED AS PER DRAWINGS AND DETAIL. VERIFY FINAL LOCATION WITH ARCHITECT.
M. INSTALLATION OF ANTI-DRAIN VALVES: ANTI-DRAIN VALVES SHALL BE INSTALLED IN THE RISER ASSEMBLIES OF ALL SPRINKLER HEADS THAT DO NOT HAVE MANUFACTURER INSTALLED ANTI-DRAIN DEVICES
N. INSTALL QUICK COUPLERS AND REMOTE CONTROL VALVES ADJACENT TO WALKS AND CURBS IN SHRUB PLANTING AREAS. INSTALL QUICK COUPLES VALVES NO FURTHER AND 170' APART.
O. SLEEVING:
1. CROSSING OF ROADS WITH IRRIGATION PIPE OR WIRING SHALL BE AVOIDED WHEREVER POSSIBLE. IF A CROSSING MUST BE MADE, SCHEDULE 80 PVC SLEEVES SHALL BE INSTALLED AT A MINIMUM DEPTH OF 30" BELOW FINISH GRADE.
2. IRRIGATION LINES UNDER OTHER ASPHALT CONCRETE OR PORTLAND CONCRETE IMPROVEMENTS (OTHER THAN ROADS) SHALL BE INSTALLED IN SCHEDULE 40 PVC SLEEVES AT A MINIMUM DEPTH OF 18" BELOW FINISHED GRADE.
3. SLEEVE SIZES FOR IRRIGATION LINES SHALL BE A MINIMUM OF TWO (2) TIMES THE SIZE OF THE LINE IT SERVES.
4. CONTROLLER WIRES LOCATED UNDER STREETS OR OTHER PERMANENT IMPROVEMENTS SHALL BE INSTALLED IN SEPARATE PVC SLEEVES AND (CORRESPONDING TO TYPE AND DEPTH AS SPECIFIED IN D-1. AND D-2. ABOVE.
3.03 CLEAN-UP:
A. AS PROJECT PROGRESSES, CONTRACTOR SHALL MAINTAIN ALL AREAS IN A NEAT MANNER AND REMOVE UNSIGHTLY DEBRIS AS NECESSARY. AFTER COMPLETION OF THE PROJECT, CONTRACTOR SHALL REMOVE ALL DEBRIS AND CONTAINERS USED IN ACCOMPLISHING WORK. HE SHALL SWEEP AND CLEAN ALL SIDEWALKS, ASPHALT, AND CONCRETE AREAS ADJACENT TO THE PLANTINGS.
****

JPBLA
JAMES P. BENEDETTI
LANDSCAPE ARCHITECT
4403 MANCHESTER AVE. SUITE 201
ENCINITAS, CA 92024
760/479-0644 FAX 760/479-0645

LICENSED LANDSCAPE ARCHITECT JAMES P. BENEDETTI No. 3058 Signature Ren Date 9/30/10 Date 8/17/09 STATE OF CALIFORNIA

"AS-BUILT"
BY: DATE:
RCE: EXP:

IRRIGATION SPECIFICATIONS

REVISIONS	APPROVED	DATE	REFERENCES	DATE

BENCH MARK
BENCHMARK: -
DESCRIPTION: -
LOCATION: -
ELEV: 119.467 DATUM:

SCALE
HORIZONTAL 1"=30'
VERTICAL N/A

ENCINITAS FIRE PROTECTION DISTRICT
BY: DATE

DESIGNED BY	DRAWN BY	CHECKED BY

PLANS PREPARED UNDER THE SUPERVISION OF
JAMES P. BENEDETTI (NAME)
DATE: 8/17/09
R.L.A. NO.: 3058
EXP. 9/30/10

APPROVALS
RECOMMENDED BY: DATE:
APPROVED BY:

CITY OF ENCINITAS PUBLIC WORKS DEPARTMENT

RECYCLED WATER CONVERSION PLANS FOR:
DRAMM & ECHTER, INC.
1150 Quail Gardens Drive, Encinitas, CA

DRAWING NO.
I-4
SHEET 5 OF 5

LANDSCAPE ARCHITECT'S NAME: JPBLA, INC.
PHONE NO.: (760) 479-0644

APPENDIX C

PHOTOGRAPHS

GEOTEK

PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California



1. **View looking south from the Site entrance off Quail Gardens Drive.**
   Above ground water holding tanks associated with recycled water system



2. **View looking north from the Site entrance off Quail Gardens Drive.**
   Above ground water holding tanks associated with recycled water system

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PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California



3. View looking south from the northwest corner of the Site.



4. View looking southwest from the northwest corner of the Site.

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PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California



5. View looking south from the northern portion of the Site.



6. View looking to the south from the northwest portion of the Site.

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PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California



7. View looking south from west portion of the Site. Drill rig in background



8. View of residential house in southwest corner of the Site.

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PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California



9. View looking northeast from fertilizer laydown yard in southeast portion of Site.



10. View looking north from near southeastern portion of the Site.

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PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California



11. View looking west from southern, east-west trending alley across the Site.



12. View looking east from southern, east-west trending alley across the Site.

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PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California



13. View looking northeast from northern, east-west trending alley across the Site. Looking at recycled water distribution tank, thermally insulated.



14. Outdoor shed noted as containing Nitric Acid, near entrance of Site.

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PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California







15. Additives to recycled water system, near entrance of Site.

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PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California



16. Notice of spray applied hazard.

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PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California





17. Outdoor shed noted as containing Acid and Pesticides

Near east end of northern, east-west alley across the Site.

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PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California





18. Outdoor trash compactor, leaking

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PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California











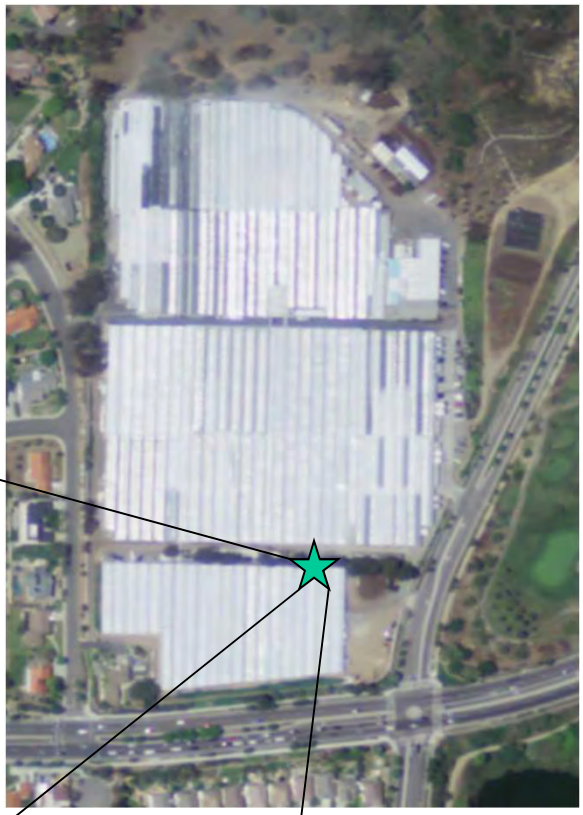


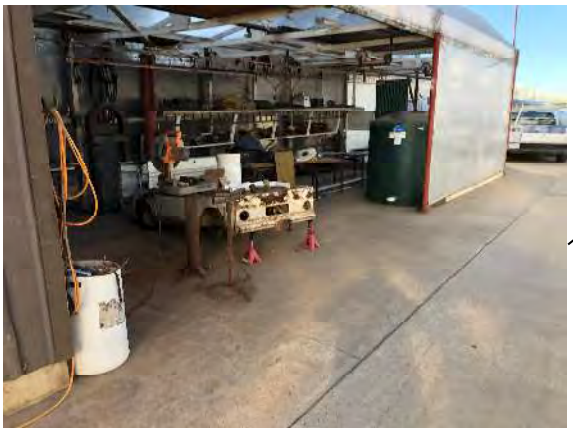
19. Photos of cisterns and surface water collections associated with the recycled water program.

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PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California









20. Workshop and above ground storage tank

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PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California









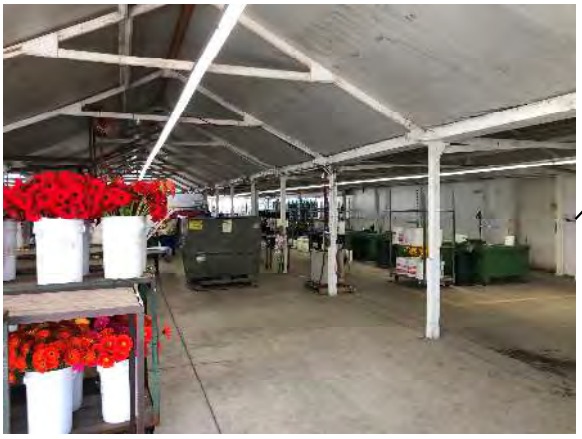
21. Photo of chemical product and storage area.

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PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California









22. Photos of packing, distribution and inside a typical greenhouse

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PHOTOGRAPHS
Fox Point Farms Project
1150 Quail Gardens Drive, Encinitas, California









23. Photos of the building associated with heating and distribution of the recycled water program

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APPENDIX D

ENVIRONMENTAL DATABASE REPORT

Fox Point Farms
1150 Quail Gardens Drive
Encinitas, CA 92024

Inquiry Number: 5844479.2s
October 25, 2019

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

1150 QUAIL GARDENS DRIVE
ENCINITAS, CA 92024

COORDINATES

Latitude (North):	33.0669930 - 33° 4' 1.17''
Longitude (West):	117.2793280 - 117° 16' 45.58''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	473925.5
UTM Y (Meters):	3658557.2
Elevation:	316 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5641296 ENCINITAS, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140603
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
1150 QUAIL GARDENS DRIVE
ENCINITAS, CA 92024

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	DRAMM & ECHTER INC	1150 QUAIL GARDENS D	FINDS, ECHO		TP
A2	RELE PROPERTIES, LLC	1150 QUAIL GARDENS	SAN DIEGO CO. SAM, San Diego Co. HMMD, CERS		TP
A3	DRAMM & ECHTER/FOX P	1150 QUAIL GARDENS D	FINDS		TP
A4	DRAMM & ECHTER INC	1150 QUAIL GARDENS D	RCRA NonGen / NLR		TP
A5	DRAMM & ECHTER INC	1150 QUAIL GARDENS D	HAZNET		TP
6	PRIVATE RESIDENCE	PRIVATE RESIDENCE	CPS-SLIC, CERS	Lower	227, 0.043, NE
7	DOUGLAS SHAW	1185 SIDONIA ST	RCRA NonGen / NLR	Lower	484, 0.092, NW
B8	ENCINITAS RANCH GOLF	1253 PASEO DE LAS FL	San Diego Co. HMMD, CERS HAZ WASTE, CERS	Lower	507, 0.096, South
B9	ENCINITAS RANCH GOLF	1253 PASEO DE LAS FL	RCRA NonGen / NLR	Lower	507, 0.096, South
10	VERIZON WIRELESS: QU	1275 QUAIL GARDENS D	San Diego Co. HMMD, DEED, CERS	Lower	2062, 0.391, NNE
11	GAYLORD BAHLMANN INC	645 SAXONY RD	SAN DIEGO CO. SAM, CPS-SLIC, San Diego Co. HMMD,...	Lower	2158, 0.409, SW
12	SPECIMEN HOUSE	782 LEUCADIA BLVD	CPS-SLIC, San Diego Co. HMMD, CERS	Lower	2251, 0.426, WSW
13	QUAIL GARDENS AGRICU	499 QUAIL GARDENS DR	ENVIROSTOR, SCH, CIWQS, CERS	Lower	2542, 0.481, South
14	PROPOSED ENCINITAS S	NORTHEAST CORNER OF	ENVIROSTOR, SCH	Lower	2972, 0.563, South

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 9 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
DRAMM & ECHTER INC 1150 QUAIL GARDENS D ENCINITAS, CA 92024	FINDS Registry ID:: 110070457139 ECHO Registry ID: 110070457139	N/A
RELE PROPERTIES, LLC 1150 QUAIL GARDENS ENCINITAS, CA 92024	SAN DIEGO CO. SAM Case Number: H39738-001 Facility Status: Preliminary Assessment San Diego Co. HMMD Record ID: DEH2002-HUPFP-199130 CERS	N/A
DRAMM & ECHTER/FOX P 1150 QUAIL GARDENS D ENCINITAS, CA 92024	FINDS Registry ID:: 110055797491	N/A
DRAMM & ECHTER INC 1150 QUAIL GARDENS D ENCINITAS, CA 92024	RCRA NonGen / NLR EPA ID:: CAL000296448	CAL000296448
DRAMM & ECHTER INC 1150 QUAIL GARDENS D ENCINITAS, CA 92024	HAZNET GEPAID: CAL000296448	N/A

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites

NPL LIENS ---- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---- Federal Facility Site Information listing
SEMS ---- Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---- Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ---- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---- RCRA - Large Quantity Generators
RCRA-SQG ---- RCRA - Small Quantity Generators
RCRA-VSQG ---- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---- Land Use Control Information System
US ENG CONTROLS ---- Engineering Controls Sites List
US INST CONTROL ---- Sites with Institutional Controls

Federal ERNS list

ERNS ---- Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ---- State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---- Solid Waste Information System

State and tribal leaking storage tank lists

LUST ---- Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ---- Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

FEMA UST ---- Underground Storage Tank Listing

UST ---- Active UST Facilities
AST ---- Aboveground Petroleum Storage Tank Facilities
INDIAN UST ---- Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

VCP ---- Voluntary Cleanup Program Properties
INDIAN VCP ---- Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS ---- Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ---- Waste Management Unit Database
SWRCY ---- Recycler Database
HAULERS ---- Registered Waste Tire Haulers Listing
INDIAN ODI ---- Report on the Status of Open Dumps on Indian Lands
ODI ---- Open Dump Inventory
DEBRIS REGION 9 ---- Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS ---- Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ---- Delisted National Clandestine Laboratory Register
HIST Cal-Sites ---- Historical Calsites Database
SCH ---- School Property Evaluation Program
CDL ---- Clandestine Drug Labs
Toxic Pits ---- Toxic Pits Cleanup Act Sites
US CDL ---- National Clandestine Laboratory Register
PFAS ---- PFAS Contamination Site Location Listing

Local Lists of Registered Storage Tanks

SWEEPS UST ---- SWEEPS UST Listing
HIST UST ---- Hazardous Substance Storage Container Database
CERS TANKS ---- California Environmental Reporting System (CERS) Tanks
CA FID UST ---- Facility Inventory Database

Local Land Records

LIENS ---- Environmental Liens Listing
LIENS 2 ---- CERCLA Lien Information

Records of Emergency Release Reports

HMIRS ---- Hazardous Materials Information Reporting System

CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
UXO	Unexploded Ordnance Sites
DOCKET HWC	Hazardous Waste Compliance Docket Listing
FUELS PROGRAM	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
ICE	ICE
HIST CORTESE	Hazardous Waste & Substance Site List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing

NPDES NPDES Permits Listing
PEST LIC Pesticide Regulation Licenses Listing
PROC Certified Processors Database
Notify 65 Proposition 65 Records
UIC UIC Listing
UIC GEO UIC GEO (GEOTRACKER)
WASTEWATER PITS Oil Wastewater Pits Listing
WDS Waste Discharge System
WIP Well Investigation Program Case List
MILITARY PRIV SITES MILITARY PRIV SITES (GEOTRACKER)
PROJECT PROJECT (GEOTRACKER)
WDR Waste Discharge Requirements Listing
SAN DIEGO CO LOP Local Oversight Program Listing
CIWQS California Integrated Water Quality System
NON-CASE INFO NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ Well Stimulation Project (GEOTRACKER)
MINES MRDS Mineral Resources Data System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP EDR Proprietary Manufactured Gas Plants
EDR Hist Auto EDR Exclusive Historical Auto Stations
EDR Hist Cleaner EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF Recovered Government Archive Solid Waste Facilities List
RGA LUST Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 07/29/2019 has revealed that there are 2 ENVIROSTOR sites within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
QUAIL GARDENS AGRICU	***499 QUAIL GARDENS DR***	***S 1/4 - 1/2 (0.481 mi.)***	***13***	***56***
Status: Inactive - Withdrawn Facility Id: 37010037				
PROPOSED ENCINITAS S	***NORTHEAST CORNER OF***	***S 1/2 - 1 (0.563 mi.)***	***14***	***60***
Status: No Further Action Facility Id: 60001165				

State and tribal leaking storage tank lists

SAN DIEGO CO. SAM: The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

A review of the SAN DIEGO CO. SAM list, as provided by EDR, and dated 03/23/2010 has revealed that there is 1 SAN DIEGO CO. SAM site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
GAYLORD BAHLMANN INC	***645 SAXONY RD***	***SW 1/4 - 1/2 (0.409 mi.)***	***11***	***39***
Case Number: H20254-001 Facility Status: Preliminary Assessment				

CPS-SLIC: Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the CPS-SLIC list, as provided by EDR, has revealed that there are 3 CPS-SLIC sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
PRIVATE RESIDENCE	***PRIVATE RESIDENCE***	***NE 0 - 1/8 (0.043 mi.)***	***6***	***19***
Database: CPS-SLIC, Date of Government Version: 06/10/2019				

Facility Status: Open - Inactive
Global Id: T10000001293

GAYLORD BAHLMANN INC ***645 SAXONY RD*** ***SW 1/4 - 1/2 (0.409 mi.)*** ***11*** ***39***
Database: CPS-SLIC, Date of Government Version: 06/10/2019
Facility Status: Completed - Case Closed
Global Id: SLT19717757

SPECIMEN HOUSE ***782 LEUCADIA BLVD*** ***WSW 1/4 - 1/2 (0.426 mi.)*** ***12*** ***55***
Database: CPS-SLIC, Date of Government Version: 06/10/2019
Facility Status: Open - Site Assessment
Global Id: T10000009371

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

CERS HAZ WASTE: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

A review of the CERS HAZ WASTE list, as provided by EDR, and dated 08/14/2019 has revealed that there is 1 CERS HAZ WASTE site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ENCINITAS RANCH GOLF	***1253 PASEO DE LAS FL***	***S 0 - 1/8 (0.096 mi.)***	***B8***	***21***

Local Land Records

DEED: The use of recorded land use restrictions is one of the methods the DTSC uses to protect the public from unsafe exposures to hazardous substances and wastes .

A review of the DEED list, as provided by EDR, and dated 06/04/2019 has revealed that there is 1 DEED site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
VERIZON WIRELESS: QU	***1275 QUAIL GARDENS D***	***NNE 1/4 - 1/2 (0.391 mi.)***	***10***	***34***
Status: OPEN - INACTIVE Envirostor ID: T10000001293				

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 06/24/2019 has revealed that

there are 2 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
DOUGLAS SHAW EPA ID:: CAC002983276	1185 SIDONIA ST	NW 0 - 1/8 (0.092 mi.)	7	20
ENCINITAS RANCH GOLF EPA ID:: CAL000188198	1253 PASEO DE LAS FL	S 0 - 1/8 (0.096 mi.)	B9	33

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 2 records.

Site Name	Database(s)
WANKET RESERVOIR	San Diego Co. HMMD
POINSETTIA PROPERTIES (AREAS 2,3 &	SAN DIEGO CO. SAM

OVERVIEW MAP - 5844479.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites

0 1/4 1/2 1 Miles

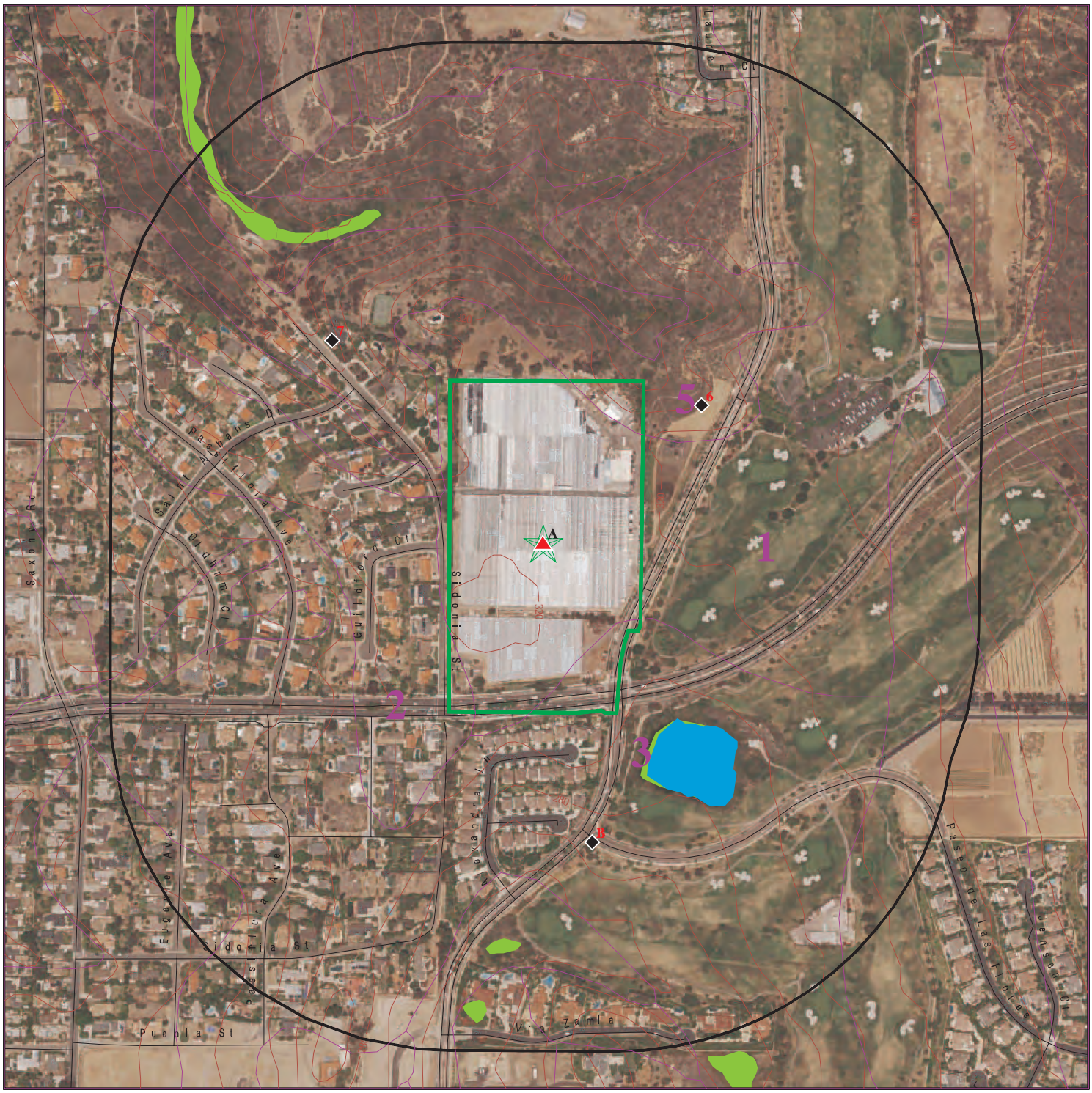
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Fox Point Farms ADDRESS: 1150 Quail Gardens Drive Encinitas CA 92024 LAT/LONG: 33.066993 / 117.279328	CLIENT: Geotek CONTACT: Chris Livesey INQUIRY #: 5844479.2s DATE: October 25, 2019 1:55 pm

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DETAIL MAP - 5844479.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/16 1/8 1/4 Miles

Indian Reservations BIA

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

Areas of Concern

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Fox Point Farms	CLIENT: Geotek
ADDRESS: 1150 Quail Gardens Drive Encinitas CA 92024	CONTACT: Chris Livesey INQUIRY #: 5844479.2s
LAT/LONG: 33.066993 / 117.279328	DATE: October 25, 2019 1:57 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	1	1	NR	2
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SAN DIEGO CO. SAM	0.500	1	0	0	1	NR	NR	2
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		1	0	2	NR	NR	3
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
San Diego Co. HMMD	0.001	1	0	NR	NR	NR	NR	1
CERS HAZ WASTE	0.250		1	0	NR	NR	NR	1
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	1	NR	NR	1
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250	1	2	0	NR	NR	NR	3
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001	2	0	NR	NR	NR	NR	2
ECHO	0.001	1	0	NR	NR	NR	NR	1
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001	1	0	NR	NR	NR	NR	1
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
SAN DIEGO CO LOP	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001	1	0	NR	NR	NR	NR	1
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
MINES MRDS	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		8	4	0	5	1	0	18

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **DRAMM & ECHTER INC** **FINDS** **1024668745**
Target **1150 QUAIL GARDENS DR** **ECHO** **N/A**
Property **ENCINITAS, CA 92024**

Site 1 of 5 in cluster A

Actual: **316 ft.**

FINDS:

Registry ID: 110070457139

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1024668745
Registry ID:	110070457139
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110070457139

A2 **RELE PROPERTIES, LLC** **SAN DIEGO CO. SAM** **S109599087**
Target **1150 QUAIL GARDENS** **San Diego Co. HMMD** **N/A**
Property **ENCINITAS, CA 92024** **CERS**

Site 2 of 5 in cluster A

Actual: **316 ft.**

SAN DIEGO CO. SAM:

Name:	RELE PROPERTIES, LLC
Address:	1150 QUAIL GARDENS
City,State,Zip:	ENCINITAS, CA 92024
Case Number:	H39738-001
Agency:	CA Regional Water Quality Control Board
Funding:	**XV**
Facility Type:	Soils Only
Facility Status:	Preliminary Assessment
Date:	2/11/2009
Date Began:	Not reported

HMMD SAN DIEGO:

Name:	DRAMM & ECHTER/FOX POINT FARMS-AWM
Address:	1150 QUAIL GARDENS DR
City,State,Zip:	ENCINITAS, CA 92024
Permit Number:	Not reported
Business Type:	Not reported
EPA Id Number:	Not reported
APN:	Not reported
Last HMMD Inspection:	Not reported
Facility Telephone:	760-436-0188 x208
Permit Status:	Permit Renewed
Permit Expiration:	Not reported
Date Last Updated:	03/31/2018
Facility Owner:	Not reported

RELE PROPERTIES, LLC (Continued) **S109599087**

Facility Mailing Address: 1150 Quail Gardens Drive, ENCINITAS, CA 92023
Facility Mailing City: Not reported
Facility Mailing State: Not reported
Facility Mailing Zip: Not reported
UST Owner: N
Handle Regulated Hazmat: Not reported
Own Or Operate UST: Not reported
Subject To APSA: Not reported
Generate Haz Waste: N
Treat Haz Waste: N
Generate Medical Waste: Not reported

Waste and Materials:
Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2017-HCHEM-0149781
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2018-03-31T05:47:00.000
Chemical Name: NITRIC ACID
Common Name: NITRIC ACID
Case Number: Not reported

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2017-HCHEM-0149782
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2018-03-31T05:47:00.000
Chemical Name: NITROGEN FERTILIZER-LIQUID (CALCIUM NITRATE)
Common Name: NITROGEN FERTILIZER-LIQUID (CALCIUM NITRATE)
Case Number: Not reported

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2017-HCHEM-0149784
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2018-03-31T05:47:00.000
Chemical Name: DIESEL FUEL
Common Name: DIESEL FUEL
Case Number: 68476-34-6

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2017-HCHEM-0149785
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2018-03-31T05:47:00.000
Chemical Name: OXYGEN
Common Name: OXYGEN
Case Number: 7782-44-7

Record ID: DEH2002-HUPFP-199130

RELE PROPERTIES, LLC (Continued) **S109599087**

Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2017-HCHEM-0149786
Trade Secret:	N
Hazardous Material Type:	Pure
Last Updated:	2018-03-31T05:47:00.000
Chemical Name:	ACETYLENE GAS
Common Name:	ACETYLENE GAS
Case Number:	74-86-2

Record ID:	DEH2002-HUPFP-199130
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2017-HCHEM-0149787
Trade Secret:	N
Hazardous Material Type:	Pure
Last Updated:	2018-03-31T05:47:00.000
Chemical Name:	Propane
Common Name:	Liquefied Petroleum Gas (lpg)
Case Number:	74-98-6

Record ID:	DEH2002-HUPFP-199130
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2018-HCHEM-0203043
Trade Secret:	N
Hazardous Material Type:	Mixture
Last Updated:	2019-03-31T05:45:59.000
Chemical Name:	NITRIC ACID
Common Name:	NITRIC ACID
Case Number:	Not reported

Record ID:	DEH2002-HUPFP-199130
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2018-HCHEM-0203044
Trade Secret:	N
Hazardous Material Type:	Mixture
Last Updated:	2019-03-31T05:45:59.000
Chemical Name:	NITROGEN FERTILIZER-LIQUID (CALCIUM NITRATE)
Common Name:	NITROGEN FERTILIZER-LIQUID (CALCIUM NITRATE)
Case Number:	Not reported

Record ID:	DEH2002-HUPFP-199130
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2018-HCHEM-0203045
Trade Secret:	N
Hazardous Material Type:	Mixture
Last Updated:	2019-03-31T05:45:59.000
Chemical Name:	DRY NITROGEN FERTILIZER
Common Name:	DRY NITROGEN FERTILIZER
Case Number:	Not reported

Record ID:	DEH2002-HUPFP-199130
Permit Status:	Permit Renewed
Active Permit:	Y

RELE PROPERTIES, LLC (Continued) **S109599087**

Child Record Id: DEH2018-HCHEM-0203046
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2019-03-31T05:45:59.000
Chemical Name: DIESEL FUEL
Common Name: DIESEL FUEL
Case Number: 68476-34-6

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2018-HCHEM-0203047
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2019-03-31T05:45:59.000
Chemical Name: Propane
Common Name: Liquefied Petroleum Gas (lpg)
Case Number: 74-98-6

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2017-HCHEM-0149783
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2018-03-31T05:47:00.000
Chemical Name: DRY NITROGEN FERTILIZER
Common Name: DRY NITROGEN FERTILIZER
Case Number: Not reported

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0089115
Trade Secret: N
Hazardous Material Type: Not reported
Last Updated: 2016-05-20T05:08:37.000
Chemical Name: CARCINOGENS &/OR REPRODUCTIVE TOXINS
Common Name: BELOW STATE DISCLOSURE AMTS ARE/MAY BE ON SITE
Case Number: Not reported

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0089116
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2016-05-20T05:08:37.000
Chemical Name: NITRIC ACID
Common Name: NITRIC ACID
Case Number: 7697-37-2

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0089117
Trade Secret: N

RELE PROPERTIES, LLC (Continued) **S109599087**

Hazardous Material Type: Mixture
Last Updated: 2016-05-20T05:08:37.000
Chemical Name: SULFURIC ACID 66%
Common Name: SULFURIC ACID 66%
Case Number: 7664-93-9

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0089118
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2016-05-20T05:08:37.000
Chemical Name: NITROGEN FERTILIZER-LIQUID (CALCIUM NITRATE)
Common Name: NITROGEN FERTILIZER-LIQUID (CALCIUM NITRATE)
Case Number: 7727-37-9

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0089119
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2016-05-20T05:08:37.000
Chemical Name: DRY NITROGEN FERTILIZER
Common Name: DRY NITROGEN FERTILIZER
Case Number: 7727-37-9

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0089120
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2016-05-20T05:08:37.000
Chemical Name: ENDOSULFAN -50% FMC THIODAN FMC
Common Name: ENDOSULFAN -50% FMC THIODAN FMC
Case Number: 115-29-7

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0089121
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2016-05-20T05:08:37.000
Chemical Name: DIESEL FUEL
Common Name: DIESEL FUEL
Case Number: 68476-34-6

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0089122
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2016-05-20T05:08:37.000

RELE PROPERTIES, LLC (Continued) **S109599087**

Chemical Name: OXYGEN
Common Name: OXYGEN
Case Number: 7782-44-7

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0089123
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2016-05-20T05:08:37.000
Chemical Name: ACETYLENE GAS
Common Name: ACETYLENE GAS
Case Number: 74-86-2

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0089124
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2016-05-20T05:08:37.000
Chemical Name: argon gas
Common Name: Argon gas
Case Number: 7440-37-1

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0089125
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2016-05-20T05:08:37.000
Chemical Name: ALDICARB 10%-TEMIK 10G-UNION
Common Name: CARBIDE (60 #AI) CARBIDE
Case Number: 116-06-3

Record ID: DEH2002-HUPFP-199130
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0089126
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2016-05-20T05:08:37.000
Chemical Name: OXAMYL 10%
Common Name: OXAMYL 10%
Case Number: 23135-22-0

Name: DRAMM & ECHTER/FOX POINT FARMS
Address: 1150 QUAIL GARDENS DR
City,State,Zip: ENCINITAS, CA 92024
Permit Number: 199130
Business Type: 6HKAG
EPA Id Number: Not reported
APN: 254-612-11-00
Last HMMD Inspection: 07/29/2010

RELE PROPERTIES, LLC (Continued) **S109599087**

Facility Telephone:	760-436-0188
Permit Status:	EXEM
Permit Expiration:	04/06/2000
Date Last Updated:	11/02/2012
Facility Owner:	ROBERT ECHTER
Facility Mailing Address:	P.O. BOX 230816
Facility Mailing City:	ENCINITAS
Facility Mailing State:	CA
Facility Mailing Zip:	92023-
UST Owner:	Not reported
Handle Regulated Hazmat:	Y
Own Or Operate UST:	Not reported
Subject To APSA:	Not reported
Generate Haz Waste:	Not reported
Treat Haz Waste:	Not reported
Generate Medical Waste:	Not reported

CERS:

Name:	DRAMM & ECHTER/FOX POINT FARMS-AWM
Address:	1150 QUAIL GARDENS DR
City,State,Zip:	ENCINITAS, CA 92024
Site ID:	391755
CERS ID:	10366951
CERS Description:	Chemical Storage Facilities

Evaluation:

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	03-01-2016
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Inspector: Villalvazo Olivia Inspection ID:5301368
Eval Division:	San Diego County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	12-12-2018
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Inspector: Aicken Claire Inspection ID:5859199
Eval Division:	San Diego County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS

Coordinates:

Site ID:	391755
Facility Name:	DRAMM & ECHTER/FOX POINT FARMS-AWM
Env Int Type Code:	HMBP
Program ID:	10366951
Coord Name:	Not reported
Ref Point Type Desc:	Center of a facility or station.
Latitude:	33.067870
Longitude:	-117.277630

Affiliation:

Affiliation Type Desc:	Environmental Contact

RELE PROPERTIES, LLC (Continued) **S109599087**

Entity Name:	JACK GRAHAM
Entity Title:	Not reported
Affiliation Address:	1150 Quail Gardens Drive
Affiliation City:	ENCINITAS
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92023
Affiliation Phone:	Not reported
Affiliation Type Desc:	Parent Corporation
Entity Name:	DRAMM & ECHTER/FOX POINT FARMS
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	CUPA District
Entity Name:	San Diego County Env Health
Entity Title:	Not reported
Affiliation Address:	PO Box 129261
Affiliation City:	San Diego
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92112-9261
Affiliation Phone:	(858) 505-6880
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	1150 Quail Gardens Drive
Affiliation City:	ENCINITAS
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92023
Affiliation Phone:	Not reported
Affiliation Type Desc:	Legal Owner
Entity Name:	ROBERT ECHTER
Entity Title:	Not reported
Affiliation Address:	1150 Quail Gardens Drive
Affiliation City:	Encinitas
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92023
Affiliation Phone:	(760) 310-4774
Affiliation Type Desc:	Operator
Entity Name:	Fox Point Farms
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported

RELE PROPERTIES, LLC (Continued) **S109599087**

Affiliation Phone: (760) 436-0188

A3 **DRAMM & ECHTER/FOX POINT FARMS-AWM** **FINDS** **1016429212**
Target **1150 QUAIL GARDENS DR** **N/A**
Property **ENCINITAS, CA 92024**

Site 3 of 5 in cluster A

Actual: **316 ft.**

FINDS:

Registry ID: 110055797491

Environmental Interest/Information System
STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

A4 **DRAMM & ECHTER INC** **RCRA NonGen / NLR** **1024811744**
Target **1150 QUAIL GARDENS DR** **CAL000296448**
Property **ENCINITAS, CA 92024**

Site 4 of 5 in cluster A

Actual: **316 ft.**

RCRA NonGen / NLR:

Date form received by agency:	2005-07-14 00:00:00.0
Facility name:	DRAMM & ECHTER INC
Facility address:	1150 QUAIL GARDENS DR ENCINITAS, CA 92024
EPA ID:	CAL000296448
Mailing address:	1150 QUAIL GARDENS DRIVE ENCINITAS, CA 92024
Contact:	BOB ECHTER -OWNER EXT208
Contact address:	1150 QUAIL GARDENS DR ENCINITAS, CA 92024
Contact country:	Not reported
Contact telephone:	760-436-0188
Contact email:	BECHTER@DRAMMECHTER.COM
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	BOB ECHTER -OWNER EXT208
Owner/operator address:	1150 QUAIL GARDENS DR ENCINITAS, CA 92024
Owner/operator country:	Not reported
Owner/operator telephone:	760-436-0188
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported

DRAMM & ECHTER INC (Continued) **1024811744**

Owner/Op end date: Not reported

Owner/operator name: ROBERT ECHTER
Owner/operator address: 1150 QUAIL GARDENS DR
ENCINITAS, CA 92024
Owner/operator country: Not reported
Owner/operator telephone: 760-436-0188
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Other
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: Yes
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

A5 **DRAMM & ECHTER INC** **HAZNET** **S113138171**
Target **1150 QUAIL GARDENS DR** **N/A**
Property **ENCINITAS, CA 92024**

Site 5 of 5 in cluster A

Actual:
316 ft.

HAZNET:
Name: DRAMM & ECHTER INC
Address: 1150 QUAIL GARDENS DR
City,State,Zip: ENCINITAS, CA 92024
Year: 2007
GEPAID: CAL000296448
Contact: BOB ECHTER
Telephone: 7604360188
Mailing Name: Not reported
Mailing Address: PO BOX 230816
Mailing City,St,Zip: ENCINITAS, CA 92023
Gen County: San Diego
TSD EPA ID: CAT080013352
TSD County: Los Angeles
Tons: 0.187
CA Waste Code: 343-Unspecified organic liquid mixture
Method: H039-Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect

DRAMM & ECHTER INC (Continued) **S113138171**

Facility County: San Diego

6
NE
< 1/8
0.043 mi.
227 ft.

PRIVATE RESIDENCE **CPS-SLIC** **S110505125**
PRIVATE RESIDENCE **CERS** **N/A**
ENCINITAS, CA 92024

Relative:
Lower

Actual:
301 ft.

CPS-SLIC:

Name:	PRIVATE RESIDENCE
Address:	PRIVATE RESIDENCE
City,State,Zip:	ENCINITAS, CA 92024
Region:	STATE
Facility Status:	**Open - Inactive**
Status Date:	12/01/2014
Global Id:	T10000001293
Lead Agency:	SAN DIEGO RWQCB (REGION 9)
Lead Agency Case Number:	Not reported
Latitude:	33.0684699123609
Longitude:	-117.277309298516
Case Type:	Cleanup Program Site
Case Worker:	SAM
Local Agency:	Not reported
RB Case Number:	4090002
File Location:	Regional Board
Potential Media Affected:	Soil
Potential Contaminants of Concern:	Diesel, Gasoline, Other Petroleum, Polynuclear aromatic hydrocarbons (PAHs)
Site History:	Resolution No. 97-43, A Resolution Conditionally Waiving Adoption of Waste Discharge Requirements for the Discharge of Contaminated Soil in Lot 58 Quail Gardens Drive, Encinitas, CA, was adopted June 11, 1997. Cost Recovery opened to review case. The property owner desires to rebuild on the property and needs a coastal permit. The coastal permit will include information similar to the existing deed restriction. Once the coastal permit is in place we can remove the deed restriction. Until this occurs, the case will be inactive but the SCP account should remain active in the event that we need to revisit the deed restriction.

Click here to access the California GeoTracker records for this facility:

CERS:

Name:	PRIVATE RESIDENCE
Address:	PRIVATE RESIDENCE
City,State,Zip:	ENCINITAS, CA 92024
Site ID:	243440
CERS ID:	T10000001293
CERS Description:	Cleanup Program Site

Affiliation:

Affiliation Type Desc:	Regional Board Caseworker
Entity Name:	SARAH A. MEARON - SAN DIEGO RWQCB (REGION 9)
Entity Title:	Not reported
Affiliation Address:	2375 NORTHSIDE DRIVE, SUITE 100
Affiliation City:	SAN DIEGO
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported

PRIVATE RESIDENCE (Continued) **S110505125**

Affiliation Phone: 6195213363

7
NW
< 1/8
0.092 mi.
484 ft.

DOUGLAS SHAW
1185 SIDONIA ST
ENCINITAS, CA 92024

RCRA NonGen / NLR **1024763412**
CAC002983276

Relative:
Lower

Actual:
212 ft.

RCRA NonGen / NLR:

Date form received by agency:	2018-10-03 00:00:00.0
Facility name:	DOUGLAS SHAW
Facility address:	1185 SIDONIA ST ENCINITAS, CA 92024
EPA ID:	CAC002983276
Contact:	DOUGLAS SHAW
Contact address:	1185 SIDONIA ST ENCINITAS, CA 92024
Contact country:	Not reported
Contact telephone:	760-519-6747
Contact email:	VANESSAPIZARRO@ALLIANCE-ENVIRO.COM
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	DOUGLAS SHAW
Owner/operator address:	1185 SIDONIA ST ENCINITAS, CA 92024
Owner/operator country:	Not reported
Owner/operator telephone:	760-519-6747
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	DOUGLAS SHAW
Owner/operator address:	1185 SIDONIA ST ENCINITAS, CA 92024
Owner/operator country:	Not reported
Owner/operator telephone:	760-519-6747
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No

DOUGLAS SHAW (Continued) **1024763412**

Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

B8 **ENCINITAS RANCH GOLF COURSE** **San Diego Co. HMMD** **S109279178**
South **1253 PASEO DE LAS FLORES** **CERS HAZ WASTE** **N/A**
< 1/8 **ENCINITAS, CA 92024** **CERS**
0.096 mi.
507 ft. **Site 1 of 2 in cluster B**

Relative: **Lower**

Actual: **268 ft.**

HMMD SAN DIEGO:

Name:	ENCINITAS RANCH GOLF COURSE
Address:	1253 PASEO DE LAS FLORES
City,State,Zip:	ENCINITAS, CA 92024
Permit Number:	Not reported
Business Type:	Not reported
EPA Id Number:	CAL000188198
APN:	Not reported
Last HMMD Inspection:	Not reported
Facility Telephone:	760-944-5601
Permit Status:	Permit Renewed
Permit Expiration:	Not reported
Date Last Updated:	01/20/2018
Facility Owner:	Not reported
Facility Mailing Address:	1275 QUAIL GARDENS DR, ENCINITAS, CA 92024
Facility Mailing City:	Not reported
Facility Mailing State:	Not reported
Facility Mailing Zip:	Not reported
UST Owner:	N
Handle Regulated Hazmat:	Not reported
Own Or Operate UST:	Not reported
Subject To APSA:	Not reported
Generate Haz Waste:	Y
Treat Haz Waste:	N
Generate Medical Waste:	Not reported

Inspection Violation:

Record ID:	DEH2002-HUPFP-137807
Permit Status:	Permit Renewed
Active Permit:	Y
Facility Id Number:	37-000-137807
Program Element:	Hazardous Waste Generator
Inspection Type:	Routine
Inspection Number:	5562918
Return To Compliance Date:	2016-12-23T00:00:00.000
Nov:	No
Violation Classification:	Class II
Underground Storage Tank Id:	Not reported
Container/Tank Id:	Not reported

ENCINITAS RANCH GOLF COURSE (Continued) **S109279178**

Last Update:	2019-04-22T11:45:26.000
Inspection Date:	2016-11-10T13:29:00.000
Violation Code:	3030005 Failed to make a proper waste determination. 22 CCR 66262.11, 66262.40(c)
Record ID:	DEH2002-HUPFP-137807
Permit Status:	Permit Renewed
Active Permit:	Y
Facility Id Number:	37-000-137807
Program Element:	Hazardous Materials Release Response Plans
Inspection Type:	Routine
Inspection Number:	4089811
Return To Compliance Date:	2014-12-24T00:00:00.000
Nov:	No
Violation Classification:	Minor
Underground Storage Tank Id:	Not reported
Container/Tank Id:	Not reported
Last Update:	2019-04-22T11:45:26.000
Inspection Date:	2014-12-08T00:00:00.000
Violation Code:	1010007 Failure to submit a revised business plan upon a substantial change in the handler's operations; HSC 6.95 25508.1(f)
Record ID:	DEH2002-HUPFP-137807
Permit Status:	Permit Renewed
Active Permit:	Y
Facility Id Number:	37-000-137807
Program Element:	Hazardous Materials Release Response Plans
Inspection Type:	Routine
Inspection Number:	4089811
Return To Compliance Date:	2015-12-24T00:00:00.000
Nov:	No
Violation Classification:	Minor
Underground Storage Tank Id:	Not reported
Container/Tank Id:	Not reported
Last Update:	2019-04-22T11:45:26.000
Inspection Date:	2014-12-08T00:00:00.000
Violation Code:	1010008 Failure to annually review and electronically certify that the business plan is complete, accurate, and up-to-date. For facilities with invenntory that exceed EPCRA thresholds; failure to submit inventory reports (Activities, Owner/Operator, Hazardous Materials Descriptions and Map pages HSC 6.95 25508.2 / 19 CCR 4 2729.5(c)
Record ID:	DEH2002-HUPFP-137807
Permit Status:	Permit Renewed
Active Permit:	Y
Facility Id Number:	37-000-137807
Program Element:	Hazardous Materials Release Response Plans
Inspection Type:	Routine
Inspection Number:	5562918
Return To Compliance Date:	2017-04-18T00:00:00.000
Nov:	No
Violation Classification:	Class II
Underground Storage Tank Id:	Not reported
Container/Tank Id:	Not reported
Last Update:	2019-04-22T11:45:26.000
Inspection Date:	2016-11-10T13:29:00.000
Violation Code:	1010008 HMBP not certified annually as complete and accurate in CERS.

ENCINITAS RANCH GOLF COURSE (Continued) **S109279178**

HSC 25508.2

Waste and Materials:

Record ID:	DEH2002-HUPFP-137807
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2017-HCHEM-0140619
Trade Secret:	N
Hazardous Material Type:	Mixture
Last Updated:	2018-01-20T02:31:13.000
Chemical Name:	GASOLINE
Common Name:	GASOLINE
Case Number:	8006-61-9

Record ID:	DEH2002-HUPFP-137807
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2017-HCHEM-0140620
Trade Secret:	N
Hazardous Material Type:	Pure
Last Updated:	2018-01-20T02:31:13.000
Chemical Name:	DIESEL
Common Name:	DIESEL
Case Number:	68476-30-2

Record ID:	DEH2002-HUPFP-137807
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2017-HCHEM-0140621
Trade Secret:	N
Hazardous Material Type:	Pure
Last Updated:	2018-01-20T02:31:13.000
Chemical Name:	Calcium Granuels
Common Name:	Calcium Granuels
Case Number:	10124-37-5

Record ID:	DEH2002-HUPFP-137807
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2017-HCHEM-0140622
Trade Secret:	N
Hazardous Material Type:	Pure
Last Updated:	2018-01-20T02:31:13.000
Chemical Name:	MP-X
Common Name:	MP-X
Case Number:	Not reported

Record ID:	DEH2002-HUPFP-137807
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2017-HCHEM-0140624
Trade Secret:	N
Hazardous Material Type:	Pure
Last Updated:	2018-01-20T02:31:13.000
Chemical Name:	PIGMENT (Par-SG)
Common Name:	PIGMENT (Par-SG)
Case Number:	Not reported

ENCINITAS RANCH GOLF COURSE (Continued) **S109279178**

Record ID:	DEH2002-HUPFP-137807
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2017-HWAST-0119223
Trade Secret:	N
Hazardous Material Type:	Not reported
Last Updated:	2018-01-20T02:31:13.000
Chemical Name:	WASTE 352 ORGANIC SOLIDS (OTHER)
Common Name:	OIL CONTAMINATED ABSORBENT
Case Number:	Not reported

Record ID:	DEH2002-HUPFP-137807
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2017-HWAST-0119224
Trade Secret:	N
Hazardous Material Type:	Not reported
Last Updated:	2018-01-20T02:31:13.000
Chemical Name:	WASTE 221 WASTE OIL & MIXED OIL
Common Name:	USED OIL
Case Number:	Not reported

Record ID:	DEH2002-HUPFP-137807
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2019-HCHEM-0207245
Trade Secret:	N
Hazardous Material Type:	Pure
Last Updated:	2019-04-22T11:45:26.000
Chemical Name:	DIESEL
Common Name:	DIESEL
Case Number:	68476-30-2

Record ID:	DEH2002-HUPFP-137807
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2019-HCHEM-0207246
Trade Secret:	N
Hazardous Material Type:	Pure
Last Updated:	2019-04-22T11:45:26.000
Chemical Name:	Calcium Granuels
Common Name:	Calcium Granuels
Case Number:	10124-37-5

Record ID:	DEH2002-HUPFP-137807
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2019-HCHEM-0207247
Trade Secret:	N
Hazardous Material Type:	Mixture
Last Updated:	2019-04-22T11:45:26.000
Chemical Name:	Soil Mico-nutrian
Common Name:	MP-X
Case Number:	Not reported

Record ID:	DEH2002-HUPFP-137807
Permit Status:	Permit Renewed

ENCINITAS RANCH GOLF COURSE (Continued) **S109279178**

Active Permit: Y
Child Record Id: DEH2019-HCHEM-0207248
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2019-04-22T11:45:26.000
Chemical Name: Ethephen
Common Name: Proxy
Case Number: Not reported

Record ID: DEH2002-HUPFP-137807
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2019-HWAST-0179228
Trade Secret: N
Hazardous Material Type: Not reported
Last Updated: 2019-04-22T11:45:26.000
Chemical Name: WASTE 221 WASTE OIL & MIXED OIL
Common Name: USED OIL
Case Number: Not reported

Record ID: DEH2002-HUPFP-137807
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2017-HCHEM-0140623
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2018-01-20T02:31:13.000
Chemical Name: GROWTH REGULATOR
Common Name: GROWTH REGULATOR
Case Number: Not reported

Record ID: DEH2002-HUPFP-137807
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2017-HWAST-0119225
Trade Secret: N
Hazardous Material Type: Not reported
Last Updated: 2018-01-20T02:31:13.000
Chemical Name: Waste Antifreeze
Common Name: Waste Antifreeze
Case Number: Not reported

Record ID: DEH2002-HUPFP-137807
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0118917
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2017-01-10T02:33:35.000
Chemical Name: Calcium Granuels
Common Name: Calcium Granuels
Case Number: 10124-37-5

Record ID: DEH2002-HUPFP-137807
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0118918

ENCINITAS RANCH GOLF COURSE (Continued) **S109279178**

Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2017-01-10T02:33:35.000
Chemical Name: CAL PLUS
Common Name: CAL PLUS
Case Number: Not reported

Record ID: DEH2002-HUPFP-137807
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0118919
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2017-01-10T02:33:35.000
Chemical Name: SOLU-CAL
Common Name: SOLU-CAL
Case Number: Not reported

Record ID: DEH2002-HUPFP-137807
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0118920
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2017-01-10T02:33:35.000
Chemical Name: MP-X
Common Name: MP-X
Case Number: Not reported

Record ID: DEH2002-HUPFP-137807
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0118921
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2017-01-10T02:33:35.000
Chemical Name: GROWTH REGULATOR
Common Name: GROWTH REGULATOR
Case Number: Not reported

Record ID: DEH2002-HUPFP-137807
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0118922
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2017-01-10T02:33:35.000
Chemical Name: PIGMENT (Par-SG)
Common Name: PIGMENT (Par-SG)
Case Number: Not reported

Record ID: DEH2002-HUPFP-137807
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HWAST-0100107
Trade Secret: N
Hazardous Material Type: Not reported

ENCINITAS RANCH GOLF COURSE (Continued) **S109279178**

Last Updated: 2017-01-10T02:33:35.000
Chemical Name: WASTE 352 ORGANIC SOLIDS (OTHER)
Common Name: OIL CONTAMINATED ABSORBENT
Case Number: Not reported

Record ID: DEH2002-HUPFP-137807
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HWAST-0100108
Trade Secret: N
Hazardous Material Type: Not reported
Last Updated: 2017-01-10T02:33:35.000
Chemical Name: WASTE 221 WASTE OIL & MIXED OIL
Common Name: USED OIL
Case Number: Not reported

Record ID: DEH2002-HUPFP-137807
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HWAST-0100109
Trade Secret: N
Hazardous Material Type: Not reported
Last Updated: 2017-01-10T02:33:35.000
Chemical Name: Waste Antifreeze
Common Name: Waste Antifreeze
Case Number: Not reported

Record ID: DEH2002-HUPFP-137807
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0118915
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2017-01-10T02:33:35.000
Chemical Name: GASOLINE
Common Name: GASOLINE
Case Number: 8006-61-9

Record ID: DEH2002-HUPFP-137807
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0118916
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2017-01-10T02:33:35.000
Chemical Name: DIESEL
Common Name: DIESEL
Case Number: 68476-30-2

Record ID: DEH2002-HUPFP-137807
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2019-HCHEM-0207244
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2019-04-22T11:45:26.000
Chemical Name: GASOLINE

ENCINITAS RANCH GOLF COURSE (Continued) **S109279178**

Common Name: GASOLINE
Case Number: 8006-61-9

Name: ENCINITAS RANCH GOLF COURSE
Address: Not reported
City,State,Zip: ENCINITAS, CA 92024
Permit Number: 137807
Business Type: 6HK40
EPA Id Number: CAL000188198
APN: Not reported
Last HMMD Inspection: 06/10/2008
Facility Telephone: 760-944-5601
Permit Status: OPEN
Permit Expiration: 01/31/2013
Date Last Updated: 11/02/2012
Facility Owner: ENCINITAS RANCH GOLF AUTHORITY
Facility Mailing Address: 1275 QUAIL GARDENS DR
Facility Mailing City: ENCINITAS
Facility Mailing State: CA
Facility Mailing Zip: 92024
UST Owner: Not reported
Handle Regulated Hazmat: Y
Own Or Operate UST: Not reported
Subject To APSA: Not reported
Generate Haz Waste: Y
Treat Haz Waste: Not reported
Generate Medical Waste: Not reported

Inventory Active Permits (not SQG Medical):
Permit Number: 137807
Update Date: 11/02/2012
Case Number: 6484-52-2
Name: AMMONIUM NITRATE
Other Information: FERTILIZER; AMMONIACAL NITROGEN
Material Waste: Material
Hazardous Categories 1: FIRE
Hazardous Categories 2: Not reported

Permit Number: 137807
Update Date: 11/02/2012
Case Number: 68476-30-2
Name: DIESEL
Other Information: Not reported
Material Waste: Material
Hazardous Categories 1: FIRE
Hazardous Categories 2: ACUTE

Permit Number: 137807
Update Date: 11/02/2012
Case Number: 8006-61-9
Name: GASOLINE
Other Information: Not reported
Material Waste: Material
Hazardous Categories 1: FIRE
Hazardous Categories 2: ACUTE

Permit Number: 137807

ENCINITAS RANCH GOLF COURSE (Continued) **S109279178**

Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 221 WASTE OIL & MIXED OIL
Other Information: USED OIL
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Permit Number: 137807
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 352 ORGANIC SOLIDS (OTHER)
Other Information: OIL CONTAMINATED ABSORBENT
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Permit Number: 137807
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 444 USED BATTERIES
Other Information: BRADING & JACOBSON TEXTRO
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Permit Number: 137807
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 888 USED OIL FILTERS
Other Information: USED OIL FILTERS
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Violations Active Permits:
Permit Number: 137807
Update Date: 11/02/2012
Inspection Date: 01/22/2004
Violation Code: 6HV0216
Violation: HAZMATS WITHOUT PROPER LABELS
Violation Citation: Hazardous materials have not been adequately labeled within 10 days & are now declared hazardous waste. HSC 25124(b)(3)(A) & 66262.34(f)
Activity: ACTIVE

Permit Number: 137807
Update Date: 11/02/2012
Inspection Date: 09/27/2005
Violation Code: 6HV0135
Violation: MANIFESTS/RECEIPTS FOR 3 YEARS NOT ONSIT
Violation Citation: Hazardous waste manifests/receipts for 3 years are not maintained onsite to document proper disposal of hazardous waste. CCR 66262.40(a) & 25160.2(b)(3)
Activity: ACTIVE

Permit Number: 137807
Update Date: 11/02/2012

ENCINITAS RANCH GOLF COURSE (Continued) **S109279178**

Inspection Date: 06/10/2008
Violation Code: 6HV0138
Violation: NO TSDF SIGNED MANIFEST ONSITE
Violation Citation: Generator has not maintained the required signed copy of the hazardous waste manifest from the TSD facility on site for review. CCR 66262.40(a)
Activity: ACTIVE

CERS HAZ WASTE:
Name: ENCINITAS RANCH GOLF COURSE
Address: 1253 PASEO DE LAS FLORES
City,State,Zip: ENCINITAS, CA 92024
Site ID: 28333
CERS ID: 10367200
CERS Description: Hazardous Waste Generator

CERS:
Name: ENCINITAS RANCH GOLF COURSE
Address: 1253 PASEO DE LAS FLORES
City,State,Zip: ENCINITAS, CA 92024
Site ID: 28333
CERS ID: 10367200
CERS Description: Chemical Storage Facilities

Violations:
Site ID: 28333
Site Name: ENCINITAS RANCH GOLF COURSE
Violation Date: 12-08-2014
Citation: HSC 6.95 25508.1(f) - California Health and Safety Code, Chapter 6.95, Section(s) 25508.1(f)
Violation Description: Failure to electronically update the business plan within 30 days of a substantial change.
Violation Notes: Returned to compliance on 12/24/2014.
Violation Division: San Diego County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 28333
Site Name: ENCINITAS RANCH GOLF COURSE
Violation Date: 11-10-2016
Citation: HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description: Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.
Violation Notes: Returned to compliance on 04/18/2017.
Violation Division: San Diego County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 28333
Site Name: ENCINITAS RANCH GOLF COURSE
Violation Date: 12-08-2014
Citation: HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description: Failure to annually review and electronically certify that the

ENCINITAS RANCH GOLF COURSE (Continued) **S109279178**

business plan is complete, accurate, and up-to-date.
Violation Notes: Returned to compliance on 12/24/2015.
Violation Division: San Diego County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 28333
Site Name: ENCINITAS RANCH GOLF COURSE
Violation Date: 11-10-2016
Citation: 22 CCR 12 66262.11 - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.11
Violation Description: Failure to determine if wastes generated are hazardous waste by using generator knowledge or applying testing method.
Violation Notes: Returned to compliance on 12/23/2016.
Violation Division: San Diego County Department of Env Health
Violation Program: HW
Violation Source: CERS

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-11-2019
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Inspector: Walsh Todd Inspection ID:6039087
Eval Division: San Diego County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-11-2019
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Inspector: Walsh Todd Inspection ID:6039087
Eval Division: San Diego County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 11-10-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Inspector: Rosales Jennifer Inspection ID:5562918
Eval Division: San Diego County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 11-10-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Inspector: Rosales Jennifer Inspection ID:5562918
Eval Division: San Diego County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-08-2014

ENCINITAS RANCH GOLF COURSE (Continued) **S109279178**

Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Inspector: Garcia Grissel Inspection ID:4089811
Eval Division:	San Diego County Department of Env Health
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	12-08-2014
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Inspector: Garcia Grissel Inspection ID:4089811
Eval Division:	San Diego County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS

Affiliation:

Affiliation Type Desc:	CUPA District
Entity Name:	San Diego County Env Health
Entity Title:	Not reported
Affiliation Address:	PO Box 129261
Affiliation City:	San Diego
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92112-9261
Affiliation Phone:	(858) 505-6880
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	1275 QUAIL GARDENS DR
Affiliation City:	ENCINITAS
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92024
Affiliation Phone:	Not reported
Affiliation Type Desc:	Environmental Contact
Entity Name:	ATTN: KENT GRAFF
Entity Title:	Not reported
Affiliation Address:	1275 QUAIL GARDENS DR
Affiliation City:	ENCINITAS
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92024
Affiliation Phone:	Not reported
Affiliation Type Desc:	Parent Corporation
Entity Name:	ENCINITAS RANCH GOLF COURSE
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

ENCINITAS RANCH GOLF COURSE (Continued) **S109279178**

Affiliation Type Desc:	Operator
Entity Name:	Encinitas Ranch Golf Authority
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(760) 944-5601

Affiliation Type Desc:	Legal Owner
Entity Name:	Encinitas Ranch Golf Authority
Entity Title:	Not reported
Affiliation Address:	1275 QUAIL GARDENS DR
Affiliation City:	ENICNITAAS
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92024
Affiliation Phone:	(760) 944-5601

B9 **ENCINITAS RANCH GOLF COURSE** **RCRA NonGen / NLR** **1024797424**
South **1253 PASEO DE LAS FLORES** **CAL000188198**
< 1/8 **ENCINITAS, CA 92024**
0.096 mi.
507 ft. **Site 2 of 2 in cluster B**

Relative:
Lower

Actual:
268 ft.

RCRA NonGen / NLR:

Date form received by agency:	1998-03-09 00:00:00.0
Facility name:	ENCINITAS RANCH GOLF COURSE
Facility address:	1253 PASEO DE LAS FLORES ENCINITAS, CA 92024
EPA ID:	CAL000188198
Mailing address:	1275 QUAIL GARDENS DR ENCINITAS, CA 92024
Contact:	KENT GRAFF
Contact address:	1275 QUAIL GARDENS DR ENCINITAS, CA 92024
Contact country:	Not reported
Contact telephone:	760-497-5021
Contact email:	KGRAFF@JCRESORTS.COM
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	ENCINITAS RANCH GOLF COURSE
Owner/operator address:	505 S VULCAN ENCINITAS, CA 92024
Owner/operator country:	Not reported
Owner/operator telephone:	760-479-5021
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported

ENCINITAS RANCH GOLF COURSE (Continued) **1024797424**

Owner/Op end date: Not reported

Owner/operator name: KENT GRAFF
Owner/operator address: 1275 QUAIL GARDENS DR
ENCINITAS, CA 92024
Owner/operator country: Not reported
Owner/operator telephone: 760-497-5021
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Other
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: Yes
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

10
NNE
1/4-1/2
0.391 mi.
2062 ft.

VERIZON WIRELESS: QUAIL GARDENS **San Diego Co. HMMD** **S110498655**
1275 QUAIL GARDENS DR **DEED** **N/A**
ENCINITAS, CA 92024 **CERS**

Relative:
Lower

Actual:
309 ft.

HMMD SAN DIEGO:
Name: VERIZON WIRELESS - QUAIL GARDENS
Address: 1275 QUAIL GARDENS DR
City,State,Zip: ENCINITAS, CA 92024
Permit Number: 210668
Business Type: 6HK18
EPA Id Number: Not reported
APN: 254-612-06-00
Last HMMD Inspection: 03/20/2012
Facility Telephone: 949-286-7000
Permit Status: OPEN
Permit Expiration: 07/31/2013
Date Last Updated: 11/02/2012
Facility Owner: VERIZON WIRELESS
Facility Mailing Address: 15505 SAND CANYON AV, BDLG D-104
Facility Mailing City: IRVINE
Facility Mailing State: CA
Facility Mailing Zip: 92618

VERIZON WIRELESS: QUAIL GARDENS (Continued) **S110498655**

UST Owner: Not reported
Handle Regulated Hazmat: Y
Own Or Operate UST: Not reported
Subject To APSA: Not reported
Generate Haz Waste: Not reported
Treat Haz Waste: Not reported
Generate Medical Waste: Not reported

Inventory Active Permits (not SQG Medical):
Permit Number: 210668
Update Date: 11/02/2012
Case Number: Not reported
Name: BATTERY ELECTROLYTE
Other Information: Not reported
Material Waste: Material
Hazardous Categories 1: REACTIVE
Hazardous Categories 2: ACUTE

Name: VERIZON WIRELESS: QUAIL GARDENS
Address: 1275 QUAIL GARDENS DR
City,State,Zip: ENCINITAS, CA 92024
Permit Number: Not reported
Business Type: Not reported
EPA Id Number: Not reported
APN: Not reported
Last HMMD Inspection: Not reported
Facility Telephone: (949) 286-7442
Permit Status: Permit Renewed
Permit Expiration: Not reported
Date Last Updated: 07/10/2018
Facility Owner: Not reported
Facility Mailing Address: 15505 Sand Canyon Avenue, MS D-104, Irvine, CA 92618
Facility Mailing City: Not reported
Facility Mailing State: Not reported
Facility Mailing Zip: Not reported
UST Owner: N
Handle Regulated Hazmat: Not reported
Own Or Operate UST: Not reported
Subject To APSA: Not reported
Generate Haz Waste: N
Treat Haz Waste: N
Generate Medical Waste: Not reported

Waste and Materials:
Record ID: DEH2009-HUPFP-210668
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2018-HCHEM-0199705
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2018-11-10T06:09:37.000
Chemical Name: BATTERY ELECTROLYTE
Common Name: BATTERY ELECTROLYTE
Case Number: Not reported

Record ID: DEH2009-HUPFP-210668
Permit Status: Permit Renewed

VERIZON WIRELESS: QUAIL GARDENS (Continued) **S110498655**

Active Permit: Y
Child Record Id: DEH2018-HCHEM-0168892
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2018-07-10T02:31:02.000
Chemical Name: BATTERY ELECTROLYTE
Common Name: BATTERY ELECTROLYTE
Case Number: Not reported

Record ID: DEH2009-HUPFP-210668
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0124913
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2017-07-27T10:56:36.000
Chemical Name: BATTERY ELECTROLYTE
Common Name: BATTERY ELECTROLYTE
Case Number: Not reported

DEED:
Name: RELE PROPERTIES (DEED RESTRICTED PARCEL #58)
Address: 1275 QUAIL GARDENS DRIVE
City,State,Zip: ENCINITAS, CA 92024
Envirostor ID: T10000001293
Area: Not reported
Sub Area: Not reported
Site Type: SLIC
Status: OPEN - INACTIVE
Agency: SWRCB
Covenant Uploaded: Y
Deed Date(s): 11/12/1996
File Name: Geotracker Land Use/Deed Restrictions

CERS:
Name: VERIZON WIRELESS: QUAIL GARDENS
Address: 1275 QUAIL GARDENS DR
City,State,Zip: ENCINITAS, CA 92024
Site ID: 166610
CERS ID: 10164227
CERS Description: Chemical Storage Facilities

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 04-23-2015
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Inspector: Khan Steven Inspection ID:4113567
Eval Division: San Diego County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-05-2017
Violations Found: No
Eval Type: Routine done by local agency

VERIZON WIRELESS: QUAIL GARDENS (Continued) **S110498655**

Eval Notes:	Inspector: Khan Steven Inspection ID:5647153
Eval Division:	San Diego County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	05-17-2019
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Inspector: Fernandez Juan Inspection ID:6165937
Eval Division:	San Diego County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS

Coordinates:

Site ID:	166610
Facility Name:	Verizon Wireless: Quail Gardens
Env Int Type Code:	HMBP
Program ID:	10164227
Coord Name:	Not reported
Ref Point Type Desc:	Center of a facility or station.
Latitude:	33.071060
Longitude:	-117.276480

Affiliation:

Affiliation Type Desc:	CUPA District
Entity Name:	San Diego County Env Health
Entity Title:	Not reported
Affiliation Address:	PO Box 129261
Affiliation City:	San Diego
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92112-9261
Affiliation Phone:	(858) 505-6880
Affiliation Type Desc:	Identification Signer
Entity Name:	Myrna Allende
Entity Title:	Regulatory Specialist
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Operator
Entity Name:	Verizon Wireless
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(949) 286-7000
Affiliation Type Desc:	Document Preparer

VERIZON WIRELESS: QUAIL GARDENS (Continued) **S110498655**

Entity Name:	Myrna Allende
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	15505 Sand Canyon Avenue, MS D-104
Affiliation City:	Irvine
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92618
Affiliation Phone:	Not reported
Affiliation Type Desc:	Environmental Contact
Entity Name:	Environmental Compliance
Entity Title:	Not reported
Affiliation Address:	15505 Sand Canyon Avenue, MS D-104
Affiliation City:	Irvine
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92618
Affiliation Phone:	Not reported
Affiliation Type Desc:	Legal Owner
Entity Name:	Verizon Wireless
Entity Title:	Not reported
Affiliation Address:	15505 Sand Canyon Avenue, MS D-104
Affiliation City:	Irvine
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92618
Affiliation Phone:	(949) 286-7000
Affiliation Type Desc:	Parent Corporation
Entity Name:	Verizon Wireless [Southern California]
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

11
SW
1/4-1/2
0.409 mi.
2158 ft.

Relative:
Lower

Actual:
211 ft.

GAYLORD BAHLMANN INC
645 SAXONY RD
ENCINITAS, CA 92024

SAN DIEGO CO. SAM
CPS-SLIC
San Diego Co. HMMD
SWEEPS UST
HAZNET
CERS

S104749418
N/A

SAN DIEGO CO. SAM:

Name:	BAHLMANN & BROWN
Address:	645 SAXONY RD
City,State,Zip:	ENCINITAS, CA 92024
Case Number:	H20254-001
Agency:	DEH Site Assessment & Mitigation
Funding:	**Private - VAP**
Facility Type:	AX
Facility Status:	Preliminary Assessment
Date:	1/11/2008
Date Began:	Not reported

CPS-SLIC:

Name:	BAHLMANN & BROWN
Address:	645 SAXONY RD
City,State,Zip:	ENCINITAS, CA 92024
Region:	STATE
Facility Status:	**Completed - Case Closed**
Status Date:	06/12/2014
Global Id:	SLT19717757
Lead Agency:	SAN DIEGO COUNTY LOP
Lead Agency Case Number:	H20254-001
Latitude:	33.0611096860843
Longitude:	-117.283753219574
Case Type:	Cleanup Program Site
Case Worker:	CF
Local Agency:	SAN DIEGO COUNTY LOP
RB Case Number:	Not reported
File Location:	Local Agency
Potential Media Affected:	Soil
Potential Contaminants of Concern:	Other Insecticides / Pesticide / Fumigants / Herbicides, Toxaphene, Diesel, Heating Oil / Fuel Oil
Site History:	A 19.5-acre property (the Bahlmann Property) in Encinitas, California, was excavated and graded in April and May 2013 in preparation for construction of a residential subdivision. The property, located west of Quail Gardens Drive, east of Saxony Road, and south of Puebla Street, was used for agricultural purposes since at least 1947, and most recently was occupied by a flower-growing operation. Prior to acquisition of the property by a prospective developer, environmental assessments were performed to characterize soil impacts from organochlorine pesticides (OCPs) and petroleum hydrocarbons. Following characterization of site soils and purchase of the property by a second developer, impacted soils were primarily excavated and reburied onsite, although a portion of the impacted soils was disposed at a regulated landfill facility. The environmental assessment, excavation, and re-burial activities at the property were performed under County of San Diego, Department of Environmental Health (DEH), Voluntary Assistance Program (VAP) Case #H20254-001, which was opened on February 11, 2008. Initial environmental assessment of the property was performed in 1996 when it was being leased by the Paul Ecke Ranch. Analytical results for soil samples collected indicated OCP-impacts to a depth of 1.5 feet.

GAYLORD BAHLMANN INC (Continued) **S104749418**

The OCPs detected in the samples included dieldrin, chlordane, 4,4-DDE, 4,4-DDD, and 4,4-DDT. In 2004 and 2007, additional assessment activities were performed at the site, including collection of soil samples in the vicinity of 14 former underground storage tanks (USTs) that were removed in 1987, former pipelines associated with the USTs, five former above-ground storage tanks, three buildings with boilers, a 55-gallon drum storage area, and former chemical storage and mixing areas. Soil samples were also collected soil samples for OCP analysis from five areas (ranges) that were occupied (Ranges 21, 23, 24, and 25) or formerly occupied (Range 22) by greenhouses. Findings of the 2007 ESA included the detection of dieldrin and toxaphene at concentrations that exceeded their respective California Human Health Screening Levels (CHHSLs) of 0.035 and 0.460 milligrams per kilogram (mg/kg). Diesel- and oil-range organics were also detected in soil samples collected from the area of three of the former USTs and around pipelines and 55-gallon drums. Detected concentrations of the diesel- and oil-range organics in some of the soil samples exceeded the cleanup goals established by the consultant (110 and 370 mg/kg, respectively). Additional soil samples were collected from borings in June 2010, October 2011, and April 2012 to delineate the horizontal and vertical extent of dieldrin and toxaphene impacts. Fourteen areas of the property were identified for removal of OCP-impacted soil. Individual areas were subsequently expanded based on analytical results for iterative confirmation soil samples collected during excavation activities. Approximately 141 tons of soil characterized by diesel- and oil-range organic concentrations in excess of cleanup goals were removed and disposed of as non-hazardous waste at a regulated disposal facility. Toxaphene-impacted soil in which detected concentrations that exceeded its California Total Threshold Leachate Concentration of 5 mg/kg were disposed as hazardous waste at the same facility. OCP-impacted soil was excavated in April and May 2013 to a depth where confirmation sample analytical results were less than the CHHSLs for dieldrin and toxaphene (0.035 and 0.460 mg/kg, respectively). The impacted soil was transported to the eastern portion of the property where undocumented fill and alluvial deposits had been removed due to properties that were geotechnically unsuitable for the planned development. The area and depth of the soil removal area were sufficient to receive approximately 13,119 cubic yards of OCP-impacted soil for onsite burial. Following placement of the OCP-impacted soil, it was covered with a geotextile fabric and capped. The cap consisted of a minimum of 10 feet of excavated soil that was characterized by OCP levels less than CHHSLs and/or the site diesel- or oil- range organic cleanup goals stated above. OCPs are not readily mobile in soil and do not appear to pose a risk to groundwater, which is estimated to occur deeper than 100 feet beneath the Bahlmann Property. Diedrin and toxaphene in soil remaining on the property are not volatile and do not pose a human health vapor risk. Remedial measures were implemented that would preclude future human contact or inhalation. An environmental restriction and covenant will be recorded prior to case closure for the portions of the property underlain by the encapsulated OCP-impacted soil to prohibit any modification of the 10-foot-thick cap of clean fill. Based on the lack of receptors, the consultant has recommended no further action and case closure. DEH concurs with these recommendations.

GAYLORD BAHLMANN INC (Continued) **S104749418**

Click here to access the California GeoTracker records for this facility:

HMMD SAN DIEGO:

Name:	GAYLORD BAHLMANN INC
Address:	645 SAXONY RD
City,State,Zip:	ENCINITAS, CA 92024
Permit Number:	120254
Business Type:	6HK03
EPA Id Number:	Not reported
APN:	256-172-03-00
Last HMMD Inspection:	Not reported
Facility Telephone:	619-753-6098
Permit Status:	INAC
Permit Expiration:	Not reported
Date Last Updated:	11/02/2012
Facility Owner:	GAYLORD BAHLMANN INC
Facility Mailing Address:	645 SAXONY RD
Facility Mailing City:	ENCINITAS
Facility Mailing State:	CA
Facility Mailing Zip:	92024-2729
UST Owner:	GAYLORD BAHLMANN INC
Handle Regulated Hazmat:	Not reported
Own Or Operate UST:	Not reported
Subject To APSA:	Not reported
Generate Haz Waste:	Not reported
Treat Haz Waste:	Not reported
Generate Medical Waste:	Not reported

UST:

UST Name:	UNDERGROUND TANK 120254 T001
Last Update:	2012-11-02 14:17:38
Permit Number:	120254
Tank Type:	SINGLE WALL
Additional Id:	1
Capacity Gallons:	12000
UST Contents:	DIESEL
Other Content Info:	DIESEL
Reg Status:	REMOVED
Remove Close Date:	1986-11-08 00:00:00
Year Installed:	1976-01-01 00:00:00
Pipe Type:	Not reported
Delivery System:	Not reported
Monitor Code:	07
UST Monitor Method:	SW TANK SW PRESSURE PIPE W/RESTRICTIVE LLD W/DAILY RECONCILIATION OR WEEKLY GAUGING: TANK AND PIPE TEST ANNUALLY

UST Name:	UNDERGROUND TANK 120254 T002
Last Update:	2012-11-02 14:17:38
Permit Number:	120254
Tank Type:	SINGLE WALL
Additional Id:	2
Capacity Gallons:	12000
UST Contents:	DIESEL
Other Content Info:	DIESEL
Reg Status:	REMOVED
Remove Close Date:	1986-11-08 00:00:00

GAYLORD BAHLMANN INC (Continued) **S104749418**

Year Installed:	1976-01-01 00:00:00
Pipe Type:	Not reported
Delivery System:	Not reported
Monitor Code:	07
UST Monitor Method:	SW TANK SW PRESSURE PIPE W/RESTRICTIVE LLD W/DAILY RECONCILIATION OR WEEKLY GAUGING: TANK AND PIPE TEST ANNUALLY
UST Name:	UNDERGROUND TANK 120254 T003
Last Update:	2012-11-02 14:17:38
Permit Number:	120254
Tank Type:	SINGLE WALL
Additional Id:	3
Capacity Gallons:	12000
UST Contents:	DIESEL
Other Content Info:	DIESEL
Reg Status:	REMOVED
Remove Close Date:	1986-11-08 00:00:00
Year Installed:	1976-01-01 00:00:00
Pipe Type:	Not reported
Delivery System:	Not reported
Monitor Code:	07
UST Monitor Method:	SW TANK SW PRESSURE PIPE W/RESTRICTIVE LLD W/DAILY RECONCILIATION OR WEEKLY GAUGING: TANK AND PIPE TEST ANNUALLY
UST Name:	UNDERGROUND TANK 120254 T004
Last Update:	2012-11-02 14:17:38
Permit Number:	120254
Tank Type:	SINGLE WALL
Additional Id:	4
Capacity Gallons:	12000
UST Contents:	DIESEL
Other Content Info:	DIESEL
Reg Status:	REMOVED
Remove Close Date:	1986-11-08 00:00:00
Year Installed:	1976-01-01 00:00:00
Pipe Type:	Not reported
Delivery System:	Not reported
Monitor Code:	07
UST Monitor Method:	SW TANK SW PRESSURE PIPE W/RESTRICTIVE LLD W/DAILY RECONCILIATION OR WEEKLY GAUGING: TANK AND PIPE TEST ANNUALLY
UST Name:	UNDERGROUND TANK 120254 T005
Last Update:	2012-11-02 14:17:38
Permit Number:	120254
Tank Type:	SINGLE WALL
Additional Id:	5
Capacity Gallons:	12000
UST Contents:	DIESEL
Other Content Info:	DIESEL
Reg Status:	REMOVED
Remove Close Date:	1986-11-08 00:00:00
Year Installed:	1976-01-01 00:00:00
Pipe Type:	Not reported
Delivery System:	Not reported
Monitor Code:	07
UST Monitor Method:	SW TANK SW PRESSURE PIPE W/RESTRICTIVE LLD W/DAILY RECONCILIATION OR WEEKLY GAUGING: TANK AND PIPE TEST ANNUALLY

GAYLORD BAHLMANN INC (Continued) **S104749418**

UST Name:	UNDERGROUND TANK 120254 T006
Last Update:	2012-11-02 14:17:38
Permit Number:	120254
Tank Type:	SINGLE WALL
Additional Id:	6
Capacity Gallons:	12000
UST Contents:	DIESEL
Other Content Info:	DIESEL
Reg Status:	REMOVED
Remove Close Date:	1986-11-08 00:00:00
Year Installed:	1976-01-01 00:00:00
Pipe Type:	Not reported
Delivery System:	Not reported
Monitor Code:	07
UST Monitor Method:	SW TANK SW PRESSURE PIPE W/RESTRICTIVE LLD W/DAILY RECONCILIATION OR WEEKLY GAUGING: TANK AND PIPE TEST ANNUALLY

UST Name:	UNDERGROUND TANK 120254 T007
Last Update:	2012-11-02 14:17:38
Permit Number:	120254
Tank Type:	SINGLE WALL
Additional Id:	7
Capacity Gallons:	12000
UST Contents:	DIESEL
Other Content Info:	DIESEL
Reg Status:	REMOVED
Remove Close Date:	1986-11-08 00:00:00
Year Installed:	1976-01-01 00:00:00
Pipe Type:	Not reported
Delivery System:	Not reported
Monitor Code:	07
UST Monitor Method:	SW TANK SW PRESSURE PIPE W/RESTRICTIVE LLD W/DAILY RECONCILIATION OR WEEKLY GAUGING: TANK AND PIPE TEST ANNUALLY

UST Name:	UNDERGROUND TANK 120254 T008
Last Update:	2012-11-02 14:17:38
Permit Number:	120254
Tank Type:	SINGLE WALL
Additional Id:	8
Capacity Gallons:	12000
UST Contents:	DIESEL
Other Content Info:	DIESEL
Reg Status:	REMOVED
Remove Close Date:	1986-11-08 00:00:00
Year Installed:	1976-01-01 00:00:00
Pipe Type:	Not reported
Delivery System:	Not reported
Monitor Code:	07
UST Monitor Method:	SW TANK SW PRESSURE PIPE W/RESTRICTIVE LLD W/DAILY RECONCILIATION OR WEEKLY GAUGING: TANK AND PIPE TEST ANNUALLY

UST Name:	UNDERGROUND TANK 120254 T009
Last Update:	2012-11-02 14:17:38
Permit Number:	120254
Tank Type:	SINGLE WALL
Additional Id:	9
Capacity Gallons:	12000

GAYLORD BAHLMANN INC (Continued) **S104749418**

UST Contents:	DIESEL
Other Content Info:	DIESEL
Reg Status:	REMOVED
Remove Close Date:	1986-11-08 00:00:00
Year Installed:	1976-01-01 00:00:00
Pipe Type:	Not reported
Delivery System:	Not reported
Monitor Code:	07
UST Monitor Method:	SW TANK SW PRESSURE PIPE W/RESTRICTIVE LLD W/DAILY RECONCILIATION OR WEEKLY GAUGING: TANK AND PIPE TEST ANNUALLY
UST Name:	UNDERGROUND TANK 120254 T010
Last Update:	2012-11-02 14:17:38
Permit Number:	120254
Tank Type:	SINGLE WALL
Additional Id:	10
Capacity Gallons:	12000
UST Contents:	DIESEL
Other Content Info:	DIESEL
Reg Status:	REMOVED
Remove Close Date:	1986-11-08 00:00:00
Year Installed:	1976-01-01 00:00:00
Pipe Type:	Not reported
Delivery System:	Not reported
Monitor Code:	07
UST Monitor Method:	SW TANK SW PRESSURE PIPE W/RESTRICTIVE LLD W/DAILY RECONCILIATION OR WEEKLY GAUGING: TANK AND PIPE TEST ANNUALLY
UST Name:	UNDERGROUND TANK 120254 T011
Last Update:	2012-11-02 14:17:38
Permit Number:	120254
Tank Type:	SINGLE WALL
Additional Id:	11
Capacity Gallons:	12000
UST Contents:	DIESEL
Other Content Info:	DIESEL
Reg Status:	REMOVED
Remove Close Date:	1986-11-08 00:00:00
Year Installed:	1976-01-01 00:00:00
Pipe Type:	Not reported
Delivery System:	Not reported
Monitor Code:	07
UST Monitor Method:	SW TANK SW PRESSURE PIPE W/RESTRICTIVE LLD W/DAILY RECONCILIATION OR WEEKLY GAUGING: TANK AND PIPE TEST ANNUALLY
UST Name:	UNDERGROUND TANK 120254 T012
Last Update:	2012-11-02 14:17:38
Permit Number:	120254
Tank Type:	SINGLE WALL
Additional Id:	12
Capacity Gallons:	12000
UST Contents:	DIESEL
Other Content Info:	DIESEL
Reg Status:	REMOVED
Remove Close Date:	1986-11-08 00:00:00
Year Installed:	1976-01-01 00:00:00
Pipe Type:	Not reported

GAYLORD BAHLMANN INC (Continued) **S104749418**

Delivery System:	Not reported
Monitor Code:	07
UST Monitor Method:	SW TANK SW PRESSURE PIPE W/RESTRICTIVE LLD W/DAILY RECONCILIATION OR WEEKLY GAUGING: TANK AND PIPE TEST ANNUALLY
UST Name:	UNDERGROUND TANK 120254 T013
Last Update:	2012-11-02 14:17:38
Permit Number:	120254
Tank Type:	SINGLE WALL
Additional Id:	13
Capacity Gallons:	3000
UST Contents:	DIESEL
Other Content Info:	DIESEL
Reg Status:	REMOVED
Remove Close Date:	1986-11-08 00:00:00
Year Installed:	1976-01-01 00:00:00
Pipe Type:	Not reported
Delivery System:	Not reported
Monitor Code:	07
UST Monitor Method:	SW TANK SW PRESSURE PIPE W/RESTRICTIVE LLD W/DAILY RECONCILIATION OR WEEKLY GAUGING: TANK AND PIPE TEST ANNUALLY
UST Name:	UNDERGROUND TANK 120254 T014
Last Update:	2012-11-02 14:17:38
Permit Number:	120254
Tank Type:	SINGLE WALL
Additional Id:	14
Capacity Gallons:	3000
UST Contents:	DIESEL
Other Content Info:	DIESEL
Reg Status:	REMOVED
Remove Close Date:	1986-11-08 00:00:00
Year Installed:	1976-01-01 00:00:00
Pipe Type:	Not reported
Delivery System:	Not reported
Monitor Code:	07
UST Monitor Method:	SW TANK SW PRESSURE PIPE W/RESTRICTIVE LLD W/DAILY RECONCILIATION OR WEEKLY GAUGING: TANK AND PIPE TEST ANNUALLY

Name:	DRAMM & ECHTER / FOX POINT FARMS-AWM
Address:	645 SAXONY RD
City,State,Zip:	ENCINITAS, CA 92024
Permit Number:	Not reported
Business Type:	Not reported
EPA Id Number:	Not reported
APN:	Not reported
Last HMMD Inspection:	Not reported
Facility Telephone:	760-436-0188
Permit Status:	Permit Renewed
Permit Expiration:	Not reported
Date Last Updated:	03/01/2018
Facility Owner:	Not reported
Facility Mailing Address:	1150 Quail Gardens Drive, ENCINITAS, CA 92023-0816
Facility Mailing City:	Not reported
Facility Mailing State:	Not reported
Facility Mailing Zip:	Not reported

GAYLORD BAHLMANN INC (Continued) **S104749418**

UST Owner: N
Handle Regulated Hazmat: Not reported
Own Or Operate UST: Not reported
Subject To APSA: Not reported
Generate Haz Waste: N
Treat Haz Waste: N
Generate Medical Waste: Not reported

Waste and Materials:
Record ID: DEH2007-HUPFP-208501
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2018-HCHEM-0203048
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2019-03-01T05:47:08.000
Chemical Name: Dry Nitrogen Fertilizer
Common Name: Dry Nitrogen Fertilizer
Case Number: Not reported

Record ID: DEH2007-HUPFP-208501
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2018-HCHEM-0203049
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2019-03-01T05:47:08.000
Chemical Name: Propane
Common Name: Liquefied Petroleum Gas (lpg)
Case Number: 74-98-6

Record ID: DEH2007-HUPFP-208501
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2017-HCHEM-0149779
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2018-03-01T05:47:43.000
Chemical Name: Liquid Nitrogen Fertilizer
Common Name: Liquid Nitrogen Fertilizer
Case Number: Not reported

Record ID: DEH2007-HUPFP-208501
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2017-HCHEM-0149780
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2018-03-01T05:47:43.000
Chemical Name: Propane
Common Name: Liquefied Petroleum Gas (lpg)
Case Number: 74-98-6

Record ID: DEH2007-HUPFP-208501
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0098183
Trade Secret: N

GAYLORD BAHLMANN INC (Continued) **S104749418**

Hazardous Material Type: Not reported
Last Updated: 2017-03-01T05:47:08.000
Chemical Name: Dry nitrogen fertilizer
Common Name: Dry Nitrogen Fertilizer
Case Number: 7727-37-9

Record ID: DEH2007-HUPFP-208501
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0098184
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2017-03-01T05:47:08.000
Chemical Name: Liquid Nitrogen Fertilizer
Common Name: Liquid Nitrogen Fertilizer
Case Number: 7727-37-9

Record ID: DEH2007-HUPFP-208501
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0098185
Trade Secret: N
Hazardous Material Type: Mixture
Last Updated: 2017-03-01T05:47:08.000
Chemical Name: Not reported
Common Name: Nitric Acid 10-40%
Case Number: Not reported

Name: DRAMME' ECHTER / FOX POINT FARMS
Address: 645 SAXONY RD
City,State,Zip: ENCINITAS, CA 92024
Permit Number: 208501
Business Type: 6HKAG
EPA Id Number: Not reported
APN: 256-172-03-00
Last HMMD Inspection: 07/29/2010
Facility Telephone: 760-436-0188
Permit Status: EXEM
Permit Expiration: 03/31/2008
Date Last Updated: 11/02/2012
Facility Owner: DRAMME' ECHTER / FOX POINT FARMS
Facility Mailing Address: PO BOX 230816
Facility Mailing City: ENCINITAS
Facility Mailing State: CA
Facility Mailing Zip: 92023-0816
UST Owner: Not reported
Handle Regulated Hazmat: Not reported
Own Or Operate UST: Not reported
Subject To APSA: Not reported
Generate Haz Waste: Not reported
Treat Haz Waste: Not reported
Generate Medical Waste: Not reported

Name: DRAMME' ECHTER / FOX POINT FARMS
Address: 645 SAXONY RD
City,State,Zip: ENCINITAS, CA 92024

GAYLORD BAHLMANN INC (Continued) **S104749418**

Permit Number:	208501
Business Type:	6HKAG
EPA Id Number:	Not reported
APN:	256-172-03-00
Last HMMD Inspection:	07/29/2010
Facility Telephone:	760-436-0188
Permit Status:	EXEM
Permit Expiration:	03/31/2008
Date Last Updated:	11/02/2012
Facility Owner:	DRAMME' ECHTER / FOX POINT FARMS
Facility Mailing Address:	PO BOX 230816
Facility Mailing City:	ENCINITAS
Facility Mailing State:	CA
Facility Mailing Zip:	92023-0816
UST Owner:	Not reported
Handle Regulated Hazmat:	Y
Own Or Operate UST:	Not reported
Subject To APSA:	Not reported
Generate Haz Waste:	Not reported
Treat Haz Waste:	Not reported
Generate Medical Waste:	Not reported

SWEEPS UST:

Name:	GAYLORD BAHLMANN INC
Address:	645 SAXONY RD
City:	ENCINITAS
Status:	Not reported
Comp Number:	20254
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	37-000-020254-000001
Tank Status:	Not reported
Capacity:	12000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	OTHER
Number Of Tanks:	14

Name:	GAYLORD BAHLMANN INC
Address:	645 SAXONY RD
City:	ENCINITAS
Status:	Not reported
Comp Number:	20254
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	37-000-020254-000002
Tank Status:	Not reported
Capacity:	12000

GAYLORD BAHLMANN INC (Continued) **S104749418**

Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: OTHER
Number Of Tanks: Not reported

Name: GAYLORD BAHLMANN INC
Address: 645 SAXONY RD
City: ENCINITAS
Status: Not reported
Comp Number: 20254
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 37-000-020254-000003
Tank Status: Not reported
Capacity: 12000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: OTHER
Number Of Tanks: Not reported

Name: GAYLORD BAHLMANN INC
Address: 645 SAXONY RD
City: ENCINITAS
Status: Not reported
Comp Number: 20254
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 37-000-020254-000004
Tank Status: Not reported
Capacity: 12000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: OTHER
Number Of Tanks: Not reported

Name: GAYLORD BAHLMANN INC
Address: 645 SAXONY RD
City: ENCINITAS
Status: Not reported
Comp Number: 20254
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported

GAYLORD BAHLMANN INC (Continued) **S104749418**

SWRCB Tank Id: 37-000-020254-000005
Tank Status: Not reported
Capacity: 12000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: OTHER
Number Of Tanks: Not reported

Name: GAYLORD BAHLMANN INC
Address: 645 SAXONY RD
City: ENCINITAS
Status: Not reported
Comp Number: 20254
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 37-000-020254-000006
Tank Status: Not reported
Capacity: 12000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: OTHER
Number Of Tanks: Not reported

Name: GAYLORD BAHLMANN INC
Address: 645 SAXONY RD
City: ENCINITAS
Status: Not reported
Comp Number: 20254
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 37-000-020254-000007
Tank Status: Not reported
Capacity: 12000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: OTHER
Number Of Tanks: Not reported

Name: GAYLORD BAHLMANN INC
Address: 645 SAXONY RD
City: ENCINITAS
Status: Not reported
Comp Number: 20254
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported

GAYLORD BAHLMANN INC (Continued) **S104749418**

Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	37-000-020254-000008
Tank Status:	Not reported
Capacity:	12000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	OTHER
Number Of Tanks:	Not reported

Name:	GAYLORD BAHLMANN INC
Address:	645 SAXONY RD
City:	ENCINITAS
Status:	Not reported
Comp Number:	20254
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	37-000-020254-000009
Tank Status:	Not reported
Capacity:	12000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	OTHER
Number Of Tanks:	Not reported

Name:	GAYLORD BAHLMANN INC
Address:	645 SAXONY RD
City:	ENCINITAS
Status:	Not reported
Comp Number:	20254
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	37-000-020254-000010
Tank Status:	Not reported
Capacity:	12000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	OTHER
Number Of Tanks:	Not reported

Name:	GAYLORD BAHLMANN INC
Address:	645 SAXONY RD
City:	ENCINITAS
Status:	Not reported
Comp Number:	20254

GAYLORD BAHLMANN INC (Continued) **S104749418**

Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	37-000-020254-000011
Tank Status:	Not reported
Capacity:	12000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	OTHER
Number Of Tanks:	Not reported

Name:	GAYLORD BAHLMANN INC
Address:	645 SAXONY RD
City:	ENCINITAS
Status:	Not reported
Comp Number:	20254
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	37-000-020254-000012
Tank Status:	Not reported
Capacity:	12000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	OTHER
Number Of Tanks:	Not reported

Name:	GAYLORD BAHLMANN INC
Address:	645 SAXONY RD
City:	ENCINITAS
Status:	Not reported
Comp Number:	20254
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	37-000-020254-000013
Tank Status:	Not reported
Capacity:	3000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	OTHER
Number Of Tanks:	Not reported

Name:	GAYLORD BAHLMANN INC
Address:	645 SAXONY RD

GAYLORD BAHLMANN INC (Continued) **S104749418**

City: ENCINITAS
Status: Not reported
Comp Number: 20254
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 37-000-020254-000014
Tank Status: Not reported
Capacity: 3000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: OTHER
Number Of Tanks: Not reported

HAZNET:
Name: SHEA HOMES LP, SAN DIEGO DIVISION
Address: 645 SAXONY RD
City,State,Zip: ENCINITAS, CA 920242729
Year: 2013
GEPAID: CAC002723243
Contact: JIM O'NEAL
Telephone: 6197269782
Mailing Name: Not reported
Mailing Address: 9990 MESA RIM RD
Mailing City,St,Zip: SAN DIEGO, CA 92121
Gen County: San Diego
TSD EPA ID: NVT330010000
TSD County: 99
Tons: 0.0375
CA Waste Code: 331-Off-specification, aged or surplus organics
Method: H132-Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Facility County: San Diego

Name: SHEA HOMES LP, SAN DIEGO DIVISION
Address: 645 SAXONY RD
City,State,Zip: ENCINITAS, CA 920242729
Year: 2013
GEPAID: CAC002723243
Contact: JIM O'NEAL
Telephone: 6197269782
Mailing Name: Not reported
Mailing Address: 9990 MESA RIM RD
Mailing City,St,Zip: SAN DIEGO, CA 92121
Gen County: San Diego
TSD EPA ID: NVT330010000
TSD County: 99
Tons: 0.0265
CA Waste Code: 331-Off-specification, aged or surplus organics
Method: H039-Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County: San Diego

GAYLORD BAHLMANN INC (Continued) **S104749418**

Name:	SHEA HOMES LP, SAN DIEGO DIVISION
Address:	645 SAXONY RD
City,State,Zip:	ENCINITAS, CA 920242729
Year:	2013
GEPAID:	CAC002723243
Contact:	JIM O'NEAL
Telephone:	6197269782
Mailing Name:	Not reported
Mailing Address:	9990 MESA RIM RD
Mailing City,St,Zip:	SAN DIEGO, CA 92121
Gen County:	San Diego
TSD EPA ID:	ARD069748192
TSD County:	99
Tons:	0.0235
CA Waste Code:	331-Off-specification, aged or surplus organics
Method:	H040-Incineration--Thermal Destruction Other Than Use As A Fuel
Facility County:	San Diego

Name:	SHEA HOMES LP, SAN DIEGO DIVISION
Address:	645 SAXONY RD
City,State,Zip:	ENCINITAS, CA 920242729
Year:	2013
GEPAID:	CAC002723243
Contact:	JIM O'NEAL
Telephone:	6197269782
Mailing Name:	Not reported
Mailing Address:	9990 MESA RIM RD
Mailing City,St,Zip:	SAN DIEGO, CA 92121
Gen County:	San Diego
TSD EPA ID:	NVT330010000
TSD County:	99
Tons:	0.2502
CA Waste Code:	122-Alkaline solution without metals pH >= 12.5
Method:	H039-Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County:	San Diego

Name:	SHEA HOMES LP, SAN DIEGO DIVISION
Address:	645 SAXONY RD
City,State,Zip:	ENCINITAS, CA 920242729
Year:	2013
GEPAID:	CAC002723243
Contact:	JIM O'NEAL
Telephone:	6197269782
Mailing Name:	Not reported
Mailing Address:	9990 MESA RIM RD
Mailing City,St,Zip:	SAN DIEGO, CA 92121
Gen County:	San Diego
TSD EPA ID:	NVT330010000
TSD County:	99
Tons:	0.1251
CA Waste Code:	223-Unspecified oil-containing waste
Method:	H039-Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County:	San Diego

GAYLORD BAHLMANN INC (Continued) **S104749418**

Click this hyperlink while viewing on your computer to access additional CA_HAZNET: detail in the EDR Site Report.

CERS:
- Name: BAHLMANN & BROWN
- Address: 645 SAXONY RD
- City,State,Zip: ENCINITAS, CA 92024
- Site ID: 208952
- CERS ID: SLT19717757
- CERS Description: Cleanup Program Site

Affiliation:
- Affiliation Type Desc: Local Agency Caseworker
- Entity Name: CAROL FENNER - SAN DIEGO COUNTY LOP
- Entity Title: Not reported
- Affiliation Address: P.O. Box 129261
- Affiliation City: San Diego
- Affiliation State: CA
- Affiliation Country: Not reported
- Affiliation Zip: Not reported
- Affiliation Phone: Not reported

12
WSW
1/4-1/2
0.426 mi.
2251 ft.

SPECIMEN HOUSE
782 LEUCADIA BLVD
ENCINITAS, CA 92024

CPS-SLIC **S113894481**
San Diego Co. HMMD **N/A**
CERS

Relative:
Lower

Actual:
201 ft.

CPS-SLIC:
- Name: SPECIMEN HOUSE
- Address: 782 LEUCADIA BOULEVARD
- City,State,Zip: ENCINITAS, CA 92024
- Region: STATE
- **Facility Status: Open - Site Assessment**
- Status Date: 09/13/2016
- Global Id: T10000009371
- Lead Agency: SAN DIEGO COUNTY LOP
- Lead Agency Case Number: DEH2016-LSAM-000399
- Latitude: 33.06598
- Longitude: -117.28793
- Case Type: Cleanup Program Site
- Case Worker: JC
- Local Agency: SAN DIEGO COUNTY LOP
- RB Case Number: Not reported
- File Location: Not reported
- Potential Media Affected: Not reported
- Potential Contaminants of Concern: Not reported
- Site History: Not reported

Click here to access the California GeoTracker records for this facility:

HMMD SAN DIEGO:
- Name: SPECIMEN HOUSE
- Address: 782 LEUCADIA BLVD
- City,State,Zip: ENCINITAS, CA 92024
- Permit Number: 199484

SPECIMEN HOUSE (Continued) **S113894481**

Business Type:	6HKAG
EPA Id Number:	Not reported
APN:	254-362-14-00
Last HMMD Inspection:	08/05/2010
Facility Telephone:	760-944-1193
Permit Status:	EXEM
Permit Expiration:	02/03/2002
Date Last Updated:	11/02/2012
Facility Owner:	BILL KOVACH
Facility Mailing Address:	782 LEUCADIA BL
Facility Mailing City:	ENCINITAS
Facility Mailing State:	CA
Facility Mailing Zip:	92024-
UST Owner:	Not reported
Handle Regulated Hazmat:	Y
Own Or Operate UST:	Not reported
Subject To APSA:	Not reported
Generate Haz Waste:	Not reported
Treat Haz Waste:	Not reported
Generate Medical Waste:	Not reported

CERS:

Name:	SPECIMEN HOUSE
Address:	782 LEUCADIA BOULEVARD
City,State,Zip:	ENCINITAS, CA 92024
Site ID:	408238
CERS ID:	T10000009371
CERS Description:	Cleanup Program Site

Affiliation:

Affiliation Type Desc:	Local Agency Caseworker
Entity Name:	JAMES CLAY - SAN DIEGO COUNTY LOP
Entity Title:	Not reported
Affiliation Address:	P.O. Box 129261
Affiliation City:	San Diego
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

13
South
1/4-1/2
0.481 mi.
2542 ft.

QUAIL GARDENS AGRICULTURE EDUCATION FACILITY **ENVIROSTOR** **S105954564**
499 QUAIL GARDENS DRIVE **SCH** **N/A**
ENCINITAS, CA 92024 **CIWQS**
CERS

Relative:
Lower

Actual:
216 ft.

ENVIROSTOR:

Name:	ECKE RANCH JUNIOR HIGH SCHOOL
Address:	499 QUAIL GARDENS DRIVE
City,State,Zip:	ENCINITAS, CA 92024
Facility ID:	37010037
Status:	Inactive - Withdrawn
Status Date:	01/27/2004
Site Code:	404439
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	10

QUAIL GARDENS AGRICULTURE EDUCATION FACILITY (Continued) **S105954564**

NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Not reported
Supervisor: * Rafat Abbasi
Division Branch: Southern California Schools & Brownfields Outreach
Assembly: 76
Senate: 36
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 33.056
Longitude: -117.279
APN: NONE SPECIFIED
Past Use: AGRICULTURAL - ROW CROPS
Potential COC: Methane
Confirmed COC: Methane
Potential Description: NONE SPECIFIED
Alias Name: ECKE RANCH JUNIOR HIGH SCHOOL
Alias Type: Alternate Name
Alias Name: ENCINITAS RANCH LLC-ECKE RANCH JUNIOR HS
Alias Type: Alternate Name
Alias Name: ENCINITAS RANCH, LLC
Alias Type: Alternate Name
Alias Name: 404439
Alias Type: Project Code (Site Code)
Alias Name: 37010037
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 08/14/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 01/27/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 05/20/2003
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

QUAIL GARDENS AGRICULTURE EDUCATION FACILITY (Continued) **S105954564**

SCH:

Name:	ECKE RANCH JUNIOR HIGH SCHOOL
Address:	499 QUAIL GARDENS DRIVE
City,State,Zip:	ENCINITAS, CA 92024
Facility ID:	37010037
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	10
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Not reported
Supervisor:	* Rafat Abbasi
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404439
Assembly:	76
Senate:	36
Special Program Status:	Not reported
Status:	Inactive - Withdrawn
Status Date:	01/27/2004
Restricted Use:	NO
Funding:	School District
Latitude:	33.056
Longitude:	-117.279
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Methane
Confirmed COC:	Methane
Potential Description:	NONE SPECIFIED
Alias Name:	ECKE RANCH JUNIOR HIGH SCHOOL
Alias Type:	Alternate Name
Alias Name:	ENCINITAS RANCH LLC-ECKE RANCH JUNIOR HS
Alias Type:	Alternate Name
Alias Name:	ENCINITAS RANCH, LLC
Alias Type:	Alternate Name
Alias Name:	404439
Alias Type:	Project Code (Site Code)
Alias Name:	37010037
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Technical Report
Completed Date:	08/14/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	01/27/2004
Comments:	Not reported
Completed Area Name:	PROJECT WIDE

QUAIL GARDENS AGRICULTURE EDUCATION FACILITY (Continued) **S105954564**

Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 05/20/2003
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

CIWQS:
Name: QUAIL GARDENS AGRICULTURE EDUCATION FACILITY
Address: 499 QUAIL GARDENS DRIVE
City,State,Zip: ENCINITAS, CA 92024
Agency: Encinitas Union School District
Agency Address: 101 South Rancho Sante Fe Road, Encinitas, CA 92024
Place/Project Type: Construction - Other: Education
SIC/NAICS: Not reported
Region: 9
Program: CONSTW
Regulatory Measure Status: Terminated
Regulatory Measure Type: Storm water construction
Order Number: 2009-0009-DWQ
WDID: 9 37C366599
NPDES Number: CAS000002
Adoption Date: Not reported
Effective Date: 05/24/2013
Termination Date: 12/13/2013
Expiration/Review Date: Not reported
Design Flow: Not reported
Major/Minor: Not reported
Complexity: Not reported
TTWQ: Not reported
Enforcement Actions within 5 years: 0
Violations within 5 years: 0
Latitude: 33.05798
Longitude: -117.27953

CERS:
Name: ECKE RANCH JUNIOR HI
Address: 499 QUAIL GARDENS DRIVE
City,State,Zip: ENCINITAS, CA 92024
Site ID: 336971
CERS ID: 37010037
CERS Description: School Investigation

Affiliation:
Affiliation Type Desc: Supervisor
Entity Name: * Rafat Abbasi
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported

QUAIL GARDENS AGRICULTURE EDUCATION FACILITY (Continued) **S105954564**

Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

14
South
1/2-1
0.563 mi.
2972 ft.

PROPOSED ENCINITAS SCHOOL SITE **ENVIROSTOR** **S110042442**
NORTHEAST CORNER OF QUAIL GARDENS DRIVE AND PASEO DE LAS VER **SCH** **N/A**
ENCINITAS, CA 92024

Relative:
Lower

Actual:
234 ft.

ENVIROSTOR:
Name: PROPOSED ENCINITAS SCHOOL SITE
Address: NORTHEAST CORNER OF QUAIL GARDENS DRIVE AND PASEO DE LAS VERDES
City,State,Zip: ENCINITAS, CA 92024
Facility ID: 60001165
Status: No Further Action
Status Date: 01/12/2010
Site Code: 404840
Site Type: School Investigation
Site Type Detailed: School
Acres: 10.2
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Not reported
Supervisor: Shahir Haddad
Division Branch: Southern California Schools & Brownfields Outreach
Assembly: 76
Senate: 36
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 33.057
Longitude: -117.278
APN: 254-663-01
Past Use: AGRICULTURAL - ROW CROPS
Potential COC: Arsenic Chlordane DDD DDE DDT Methane
Confirmed COC: 30001-NO 30004-NO 30015-NO 30006-NO 30007-NO 30008-NO No Contaminants found
Potential Description: SOIL
Alias Name: 254-663-01
Alias Type: APN
Alias Name: 404840
Alias Type: Project Code (Site Code)
Alias Name: 60001165
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Tech Memo
Completed Date: 10/21/2009
Comments: DTSC comments on the TM were discussed during the scoping meeting

Completed Area Name: PROJECT WIDE

PROPOSED ENCINITAS SCHOOL SITE (Continued) **S110042442**

Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 01/12/2010
Comments: DTSC approved the PEA with a No Further Action determination

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 10/12/2009
Comments: Signed agreement sent (FedEx) to District.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 01/12/2010
Comments: DTSC prepared a project close out cost recovery unit memorandum

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Name: PROPOSED ENCINITAS SCHOOL SITE
Address: NORTHEAST CORNER OF QUAIL GARDENS DRIVE AND PASEO DE LAS VERDES
City,State,Zip: ENCINITAS, CA 92024
Facility ID: 60001165
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 10.2
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Not reported
Supervisor: Shahir Haddad
Division Branch: Southern California Schools & Brownfields Outreach
Site Code: 404840
Assembly: 76
Senate: 36
Special Program Status: Not reported
Status: No Further Action
Status Date: 01/12/2010
Restricted Use: NO
Funding: School District
Latitude: 33.057
Longitude: -117.278
APN: 254-663-01
Past Use: AGRICULTURAL - ROW CROPS
Potential COC: Arsenic, Arsenic, Chlordane, DDD, DDE, DDT, Methane

PROPOSED ENCINITAS SCHOOL SITE (Continued) **S110042442**

Confirmed COC:	30001-NO, 30004-NO, 30015-NO, 30006-NO, 30007-NO, 30008-NO, No Contaminants found
Potential Description:	SOIL
Alias Name:	254-663-01
Alias Type:	APN
Alias Name:	404840
Alias Type:	Project Code (Site Code)
Alias Name:	60001165
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Tech Memo
Completed Date:	10/21/2009
Comments:	DTSC comments on the TM were discussed during the scoping meeting
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	01/12/2010
Comments:	DTSC approved the PEA with a No Further Action determination
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	10/12/2009
Comments:	Signed agreement sent (FedEx) to District.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	01/12/2010
Comments:	DTSC prepared a project close out cost recovery unit memorandum
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Count: 2 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
CARLSBAD	S109348913	POINSETTIA PROPERTIES (AREAS 2,3 &	AVENIDA ENCINAS @ POINSETTIA	92009	SAN DIEGO CO. SAM
ENCINITAS	S105539697	WANKET RESERVOIR	QUAIL GARDENS DR	92024	San Diego Co. HMMD

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: N/A
Last EDR Contact: 10/02/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: N/A
Last EDR Contact: 10/02/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: N/A
Last EDR Contact: 10/02/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/03/2019
Date Data Arrived at EDR: 04/05/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 10/04/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/02/2019
Next Scheduled EDR Contact: 01/27/2020
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/02/2019
Next Scheduled EDR Contact: 01/27/2020
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/24/2019
Date Data Arrived at EDR: 06/26/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 113

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/24/2019
Date Data Arrived at EDR: 06/26/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 113

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/24/2019
Date Data Arrived at EDR: 06/26/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 113

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/24/2019
Date Data Arrived at EDR: 06/26/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 113

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/24/2019
Date Data Arrived at EDR: 06/26/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 113

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 08/13/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 6

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/07/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 08/19/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 08/19/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/09/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 14

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 07/29/2019
Date Data Arrived at EDR: 07/31/2019
Date Made Active in Reports: 10/08/2019
Number of Days to Update: 69

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 07/29/2019
Date Data Arrived at EDR: 07/31/2019
Date Made Active in Reports: 10/08/2019
Number of Days to Update: 69

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 08/12/2019
Date Data Arrived at EDR: 08/13/2019
Date Made Active in Reports: 10/09/2019
Number of Days to Update: 57

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/13/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 08/05/2019
Number of Days to Update: 55

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/08/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 79

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 04/12/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 07/23/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/16/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 07/02/2019
Date Data Arrived at EDR: 10/16/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 8
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/16/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/08/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/16/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 08/05/2019
Number of Days to Update: 55

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 10/11/2019
Next Scheduled EDR Contact: 01/20/2020
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/23/2019
Number of Days to Update: 42

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/12/2019
Date Made Active in Reports: 07/23/2019
Number of Days to Update: 41

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 09/12/2019
Next Scheduled EDR Contact: 12/30/2019
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/08/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/05/2019
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 05/02/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/16/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 79

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/08/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/16/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 04/12/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 80

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 07/23/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 79

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 07/29/2019
Date Data Arrived at EDR: 07/31/2019
Date Made Active in Reports: 10/08/2019
Number of Days to Update: 69

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 09/19/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 06/24/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/21/2019
Number of Days to Update: 57

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 09/24/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/03/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/19/2019
Next Scheduled EDR Contact: 12/30/2019
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 07/25/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/12/2019
Date Made Active in Reports: 08/15/2019
Number of Days to Update: 64

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 03/26/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/30/2019
Number of Days to Update: 34

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/07/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 07/25/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 08/02/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/13/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 07/29/2019
Date Data Arrived at EDR: 07/31/2019
Date Made Active in Reports: 10/08/2019
Number of Days to Update: 69

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/16/2019
Date Made Active in Reports: 09/24/2019
Number of Days to Update: 70

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 09/24/2019
Next Scheduled EDR Contact: 01/20/2020
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 08/14/2019
Date Data Arrived at EDR: 08/14/2019
Date Made Active in Reports: 08/21/2019
Number of Days to Update: 7

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 10/22/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/13/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Quarterly

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 06/28/2019
Date Data Arrived at EDR: 06/28/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 26

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 12/04/2018
Date Data Arrived at EDR: 12/06/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing
Aboveground storage tank sites

Date of Government Version: 08/01/2019
Date Data Arrived at EDR: 08/02/2019
Date Made Active in Reports: 10/11/2019
Number of Days to Update: 70

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

CERS TANKS: California Environmental Reporting System (CERS) Tanks
List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 08/14/2019
Date Data Arrived at EDR: 08/14/2019
Date Made Active in Reports: 08/21/2019
Number of Days to Update: 7

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 10/22/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Quarterly

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 06/05/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/09/2019
Number of Days to Update: 64

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 07/30/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 10/02/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 65

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 06/24/2019
Date Data Arrived at EDR: 06/26/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 89

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/24/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 05/15/2019
Date Data Arrived at EDR: 06/24/2019
Date Made Active in Reports: 08/21/2019
Number of Days to Update: 58

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 07/26/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 08/05/2019
Number of Days to Update: 55

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/24/2019
Date Data Arrived at EDR: 06/26/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 113

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 05/15/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 79

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/23/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/11/2019
Next Scheduled EDR Contact: 01/20/2020
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/07/2019
Next Scheduled EDR Contact: 01/20/2020
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/16/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 06/24/2019
Date Data Arrived at EDR: 06/26/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/24/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/09/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/19/2019
Next Scheduled EDR Contact: 12/30/2019
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/23/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 09/30/2018
Date Data Arrived at EDR: 04/24/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 106

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/23/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 10/02/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/25/2019
Date Data Arrived at EDR: 05/02/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 10/21/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 08/20/2019
Date Data Arrived at EDR: 09/05/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 18

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 10/02/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 03/20/2019
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 34

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/11/2019
Next Scheduled EDR Contact: 01/20/2020
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 10/07/2019
Next Scheduled EDR Contact: 01/20/2020
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/20/2019
Date Data Arrived at EDR: 06/20/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 49

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 09/06/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 09/03/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/09/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 10/15/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/31/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 85

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/30/2019
Date Data Arrived at EDR: 07/16/2019
Date Made Active in Reports: 10/02/2019
Number of Days to Update: 78

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 10/02/2019
Next Scheduled EDR Contact: 01/20/2020
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/06/2019
Next Scheduled EDR Contact: 01/19/2020
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 07/30/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 10/02/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/03/2019
Date Data Arrived at EDR: 05/29/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 71

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/27/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 06/06/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 140

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 09/12/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/30/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/30/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/10/2019
Date Data Arrived at EDR: 09/10/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 37

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/10/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 05/03/2019
Date Data Arrived at EDR: 06/05/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 90

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 07/06/2019
Date Data Arrived at EDR: 07/09/2019
Date Made Active in Reports: 10/02/2019
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 10/08/2019
Next Scheduled EDR Contact: 01/20/2020
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites
A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/17/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 74
Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 10/10/2019
Next Scheduled EDR Contact: 01/27/2020
Data Release Frequency: Varies

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71
Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 05/20/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 79
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6
Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 06/24/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/21/2019
Number of Days to Update: 57
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 09/24/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

CUPA SAN FRANCISCO CO: CUPA Facility Listing
Cupa facilities

Date of Government Version: 08/01/2019
Date Data Arrived at EDR: 08/02/2019
Date Made Active in Reports: 10/09/2019
Number of Days to Update: 68
Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/14/2019
Date Made Active in Reports: 07/17/2019
Number of Days to Update: 64

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 08/15/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/28/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 55

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Annually

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 03/19/2019
Date Data Arrived at EDR: 03/22/2019
Date Made Active in Reports: 04/09/2019
Number of Days to Update: 18

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 06/03/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 65

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/24/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 59

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/18/2019
Next Scheduled EDR Contact: 12/30/2019
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/22/2019
Date Made Active in Reports: 09/26/2019
Number of Days to Update: 66

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/23/2019
Date Made Active in Reports: 09/30/2019
Number of Days to Update: 69

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 08/16/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 10/18/2019
Number of Days to Update: 59

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/07/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 05/29/2019
Date Made Active in Reports: 07/22/2019
Number of Days to Update: 54

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 10/11/2019
Next Scheduled EDR Contact: 01/20/2020
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 08/19/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 10/18/2019
Number of Days to Update: 59

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 08/19/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 10/18/2019
Number of Days to Update: 59

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 07/08/2019
Date Data Arrived at EDR: 07/09/2019
Date Made Active in Reports: 09/20/2019
Number of Days to Update: 73

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 10/08/2019
Next Scheduled EDR Contact: 01/20/2020
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 08/15/2019
Number of Days to Update: 65
Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 05/17/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/09/2019
Number of Days to Update: 66
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 08/12/2019
Date Data Arrived at EDR: 08/13/2019
Date Made Active in Reports: 10/16/2019
Number of Days to Update: 64
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/13/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/09/2019
Number of Days to Update: 66
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/12/2019
Date Made Active in Reports: 08/15/2019
Number of Days to Update: 64
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 06/17/2019
Date Data Arrived at EDR: 06/18/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 65
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 12/30/2019
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 04/27/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 34
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 07/11/2018
Date Made Active in Reports: 09/13/2018
Number of Days to Update: 64
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 10/11/2019
Next Scheduled EDR Contact: 01/20/2020
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 09/19/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/12/2019
Date Made Active in Reports: 08/15/2019
Number of Days to Update: 64

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 65

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 08/14/2019
Date Data Arrived at EDR: 08/14/2019
Date Made Active in Reports: 08/21/2019
Number of Days to Update: 7

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 10/22/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 08/30/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations
EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 10/02/2019
Next Scheduled EDR Contact: 01/20/2020
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks
Underground storage tank sites located in Alameda county.

Date of Government Version: 04/10/2019
Date Data Arrived at EDR: 04/11/2019
Date Made Active in Reports: 06/20/2019
Number of Days to Update: 70

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 10/02/2019
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 06/27/2019
Date Data Arrived at EDR: 06/28/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 26

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 10/02/2019
Next Scheduled EDR Contact: 01/20/2020
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 08/05/2019
Date Data Arrived at EDR: 08/07/2019
Date Made Active in Reports: 10/09/2019
Number of Days to Update: 63

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 09/23/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 08/14/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 10/18/2019
Number of Days to Update: 59

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 08/20/2019
Date Data Arrived at EDR: 08/23/2019
Date Made Active in Reports: 10/22/2019
Number of Days to Update: 60

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 07/26/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 07/30/2019
Date Data Arrived at EDR: 08/02/2019
Date Made Active in Reports: 10/09/2019
Number of Days to Update: 68

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 07/25/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 06/05/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 07/23/2019
Number of Days to Update: 47

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 07/11/2019
Date Data Arrived at EDR: 07/11/2019
Date Made Active in Reports: 09/20/2019
Number of Days to Update: 71

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 10/09/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/08/2019
Date Data Arrived at EDR: 07/10/2019
Date Made Active in Reports: 09/20/2019
Number of Days to Update: 72

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/19/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/23/2019
Date Made Active in Reports: 09/26/2019
Number of Days to Update: 65

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

KERN COUNTY:

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 08/01/2019
Date Data Arrived at EDR: 08/06/2019
Date Made Active in Reports: 10/08/2019
Number of Days to Update: 63

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/14/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 10/18/2019
Number of Days to Update: 59

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 08/16/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 10/18/2019
Number of Days to Update: 59

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 10/15/2019
Next Scheduled EDR Contact: 01/27/2020
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/22/2019
Date Data Arrived at EDR: 07/23/2019
Date Made Active in Reports: 09/26/2019
Number of Days to Update: 65

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 09/12/2019
Next Scheduled EDR Contact: 12/30/2019
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 07/09/2019
Date Data Arrived at EDR: 07/11/2019
Date Made Active in Reports: 09/20/2019
Number of Days to Update: 71

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 10/02/2019
Next Scheduled EDR Contact: 01/20/2020
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/15/2019
Date Data Arrived at EDR: 07/17/2019
Date Made Active in Reports: 09/26/2019
Number of Days to Update: 71

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/16/2019
Next Scheduled EDR Contact: 01/27/2020
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 01/15/2019
Date Made Active in Reports: 03/07/2019
Number of Days to Update: 51

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 10/09/2019
Next Scheduled EDR Contact: 01/27/2020
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/27/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills
This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 04/30/2012
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 42
Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 10/18/2019
Next Scheduled EDR Contact: 01/27/2020
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory
A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/27/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory
A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 06/25/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 07/15/2019
Date Data Arrived at EDR: 07/17/2019
Date Made Active in Reports: 08/05/2019
Number of Days to Update: 19
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 10/18/2019
Next Scheduled EDR Contact: 01/27/2020
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/09/2019
Next Scheduled EDR Contact: 01/27/2020
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 06/27/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 10/02/2019
Number of Days to Update: 64

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 05/28/2019
Date Data Arrived at EDR: 05/30/2019
Date Made Active in Reports: 08/05/2019
Number of Days to Update: 67

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 09/25/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 05/29/2019
Date Data Arrived at EDR: 05/30/2019
Date Made Active in Reports: 07/22/2019
Number of Days to Update: 53

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 05/23/2019
Date Data Arrived at EDR: 05/30/2019
Date Made Active in Reports: 07/22/2019
Number of Days to Update: 53

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 07/25/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/30/2019
Number of Days to Update: 62

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 09/30/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 02/21/2019
Date Data Arrived at EDR: 02/22/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 14

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/23/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 10/02/2019
Number of Days to Update: 64

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 07/25/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 07/10/2019
Date Data Arrived at EDR: 08/07/2019
Date Made Active in Reports: 10/09/2019
Number of Days to Update: 63

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 07/10/2019
Date Data Arrived at EDR: 08/09/2019
Date Made Active in Reports: 10/09/2019
Number of Days to Update: 61

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 07/10/2019
Date Data Arrived at EDR: 08/06/2019
Date Made Active in Reports: 10/09/2019
Number of Days to Update: 64

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 06/03/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/12/2019
Number of Days to Update: 69

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 07/10/2019
Date Data Arrived at EDR: 07/11/2019
Date Made Active in Reports: 09/20/2019
Number of Days to Update: 71

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 12/30/2019
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/10/2019
Date Data Arrived at EDR: 07/11/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 74

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 12/30/2019
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 05/06/2019
Date Data Arrived at EDR: 06/28/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 55

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/01/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/06/2019
Date Data Arrived at EDR: 06/28/2019
Date Made Active in Reports: 09/13/2019
Number of Days to Update: 77

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 10/01/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 07/16/2019
Date Data Arrived at EDR: 07/16/2019
Date Made Active in Reports: 09/24/2019
Number of Days to Update: 70

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 07/16/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/31/2019
Date Data Arrived at EDR: 05/31/2019
Date Made Active in Reports: 07/22/2019
Number of Days to Update: 52

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 65

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 56

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/16/2019
Date Data Arrived at EDR: 07/23/2019
Date Made Active in Reports: 09/30/2019
Number of Days to Update: 69

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

LUST SAN FRANCISCO: Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 08/01/2019
Date Data Arrived at EDR: 08/02/2019
Date Made Active in Reports: 10/08/2019
Number of Days to Update: 67

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 09/11/2019
Next Scheduled EDR Contact: 12/29/2019
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 08/14/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 10/18/2019
Number of Days to Update: 59

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 08/06/2019
Date Data Arrived at EDR: 08/14/2019
Date Made Active in Reports: 08/15/2019
Number of Days to Update: 1

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 08/14/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 10/18/2019
Number of Days to Update: 59

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 07/30/2019
Date Data Arrived at EDR: 08/02/2019
Date Made Active in Reports: 10/08/2019
Number of Days to Update: 67

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 07/23/2019
Number of Days to Update: 47

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 06/18/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 29

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/02/2019
Date Data Arrived at EDR: 07/02/2019
Date Made Active in Reports: 09/20/2019
Number of Days to Update: 80

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 09/19/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 07/18/2019
Date Data Arrived at EDR: 07/18/2019
Date Made Active in Reports: 09/26/2019
Number of Days to Update: 70

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 10/15/2019
Next Scheduled EDR Contact: 01/27/2020
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 06/03/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 07/23/2019
Number of Days to Update: 49

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 05/20/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 07/18/2019
Number of Days to Update: 58

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/23/2019
Date Made Active in Reports: 09/26/2019
Number of Days to Update: 65

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 08/12/2019
Date Data Arrived at EDR: 08/14/2019
Date Made Active in Reports: 10/17/2019
Number of Days to Update: 64

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 10/17/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 05/29/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 09/30/2019
Number of Days to Update: 63

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 10/21/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/25/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/07/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 05/29/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 09/30/2019
Number of Days to Update: 63

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 10/21/2019
Next Scheduled EDR Contact: 02/03/2020
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/12/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 42

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 06/26/2019
Date Data Arrived at EDR: 06/28/2019
Date Made Active in Reports: 07/31/2019
Number of Days to Update: 33

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 09/25/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 07/26/2019
Date Data Arrived at EDR: 07/31/2019
Date Made Active in Reports: 10/08/2019
Number of Days to Update: 69

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 07/25/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 05/14/2019
Date Data Arrived at EDR: 05/14/2019
Date Made Active in Reports: 08/05/2019
Number of Days to Update: 83

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/07/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/02/2019
Next Scheduled EDR Contact: 01/20/2020
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 05/01/2019
Date Made Active in Reports: 06/21/2019
Number of Days to Update: 51

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/09/2019
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 04/09/2018
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/16/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/06/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

FOX POINT FARMS
1150 QUAIL GARDENS DRIVE
ENCINITAS, CA 92024

TARGET PROPERTY COORDINATES

Latitude (North):	33.066993 - 33° 4' 1.17''
Longitude (West):	117.279328 - 117° 16' 45.58''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	473925.5
UTM Y (Meters):	3658557.2
Elevation:	316 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5641296 ENCINITAS, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

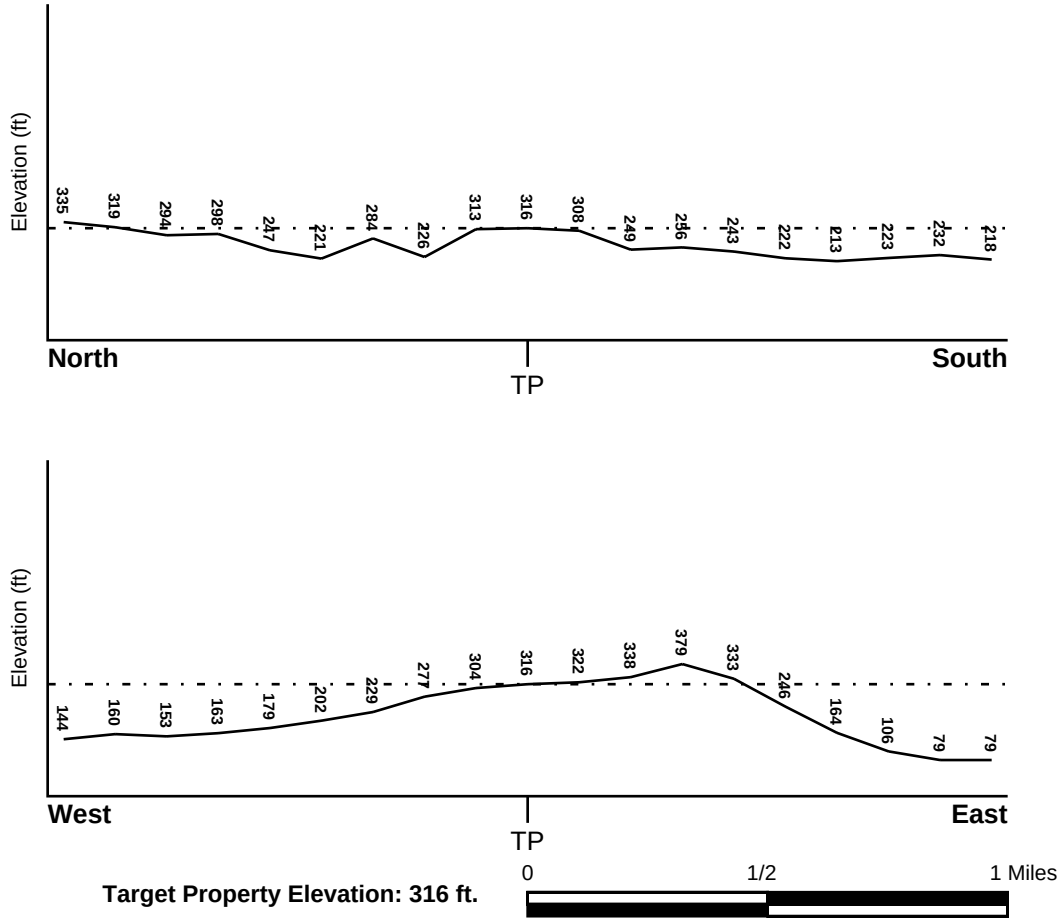
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General West

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 316 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06073C1035G	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06073C1045G	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
ENCINITAS	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

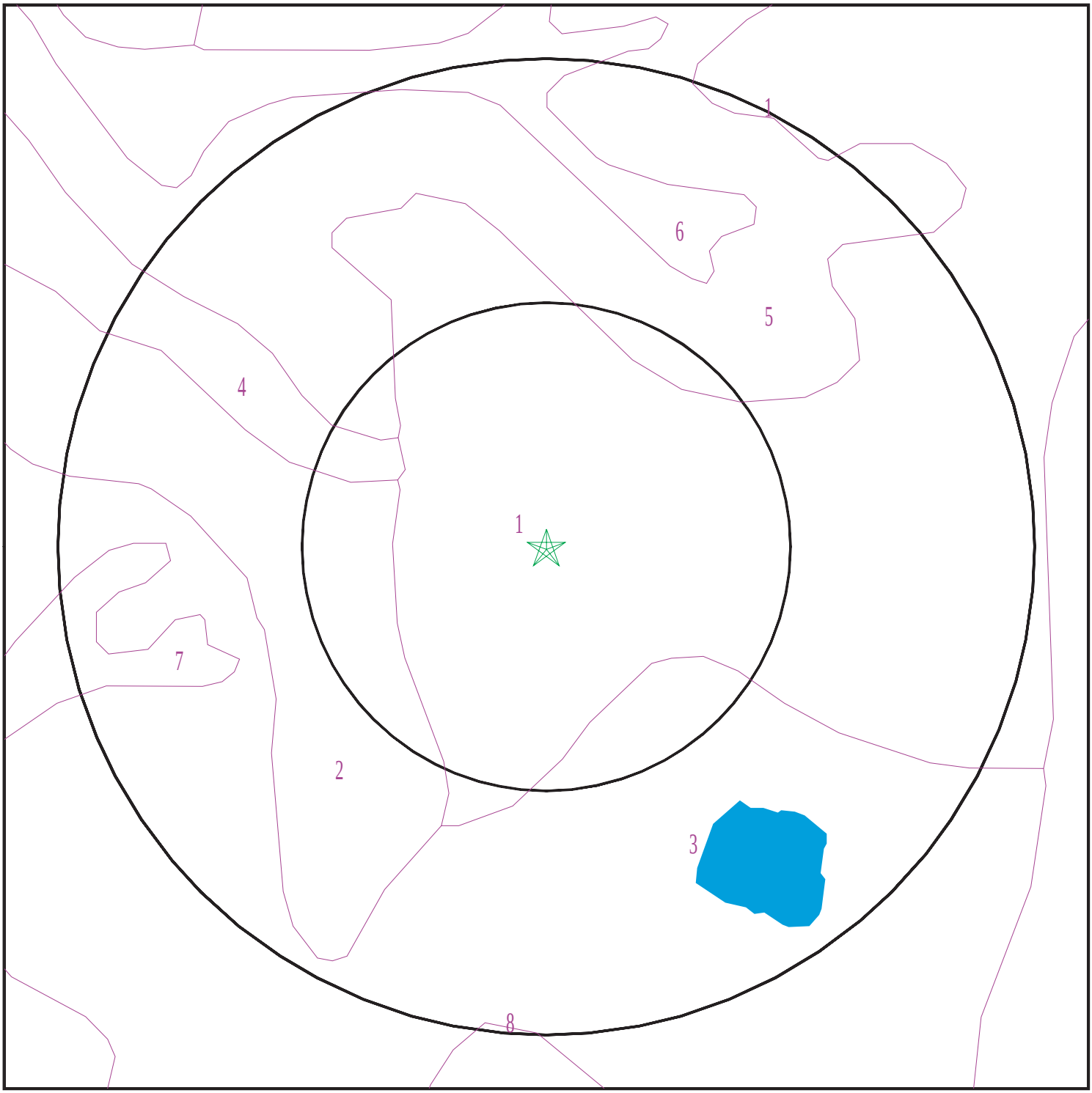
Era:	Cenozoic
System:	Tertiary
Series:	Eocene
Code:	Te *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 5844479.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Fox Point Farms	CLIENT:	Geotek
ADDRESS:	1150 Quail Gardens Drive Encinitas CA 92024	CONTACT:	Chris Livesey
LAT/LONG:	33.066993 / 117.279328	INQUIRY #:	5844479.2s
		DATE:	October 25, 2019 1:57 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: CARLSBAD

Soil Surface Texture: gravelly loamy sand

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	20 inches	gravelly loamy sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	Not reported	Max: Min:	Max: Min:
2	20 inches	35 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	Not reported	Max: Min:	Max: Min:
3	35 inches	50 inches	indurated	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 2

Soil Component Name: CHESTERTON

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	18 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
2	18 inches	33 inches	sandy clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
3	33 inches	59 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 3

Soil Component Name: CIENEBA

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: Min:	Max: Min:
2	9 inches	14 inches	weathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 4

Soil Component Name: ALTAMONT

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	27 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: Min:	Max: Min:
2	27 inches	35 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: Min:	Max: Min:
3	35 inches	40 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 5

Soil Component Name: ROUGH BROKEN LAND

Soil Surface Texture: unweathered bedrock

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	1 inches	unweathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 6

Soil Component Name: SALINAS

Soil Surface Texture: clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9
2	22 inches	46 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9
3	46 inches	64 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9

Soil Map ID: 7

Soil Component Name: STEEP GULLIED LAND

Soil Surface Texture: variable

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class:
Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	59 inches	variable	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 8

Soil Component Name: MARINA

Soil Surface Texture: loamy coarse sand

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	loamy coarse sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4
2	9 inches	57 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4
3	57 inches	59 inches	sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

No PWS System Found

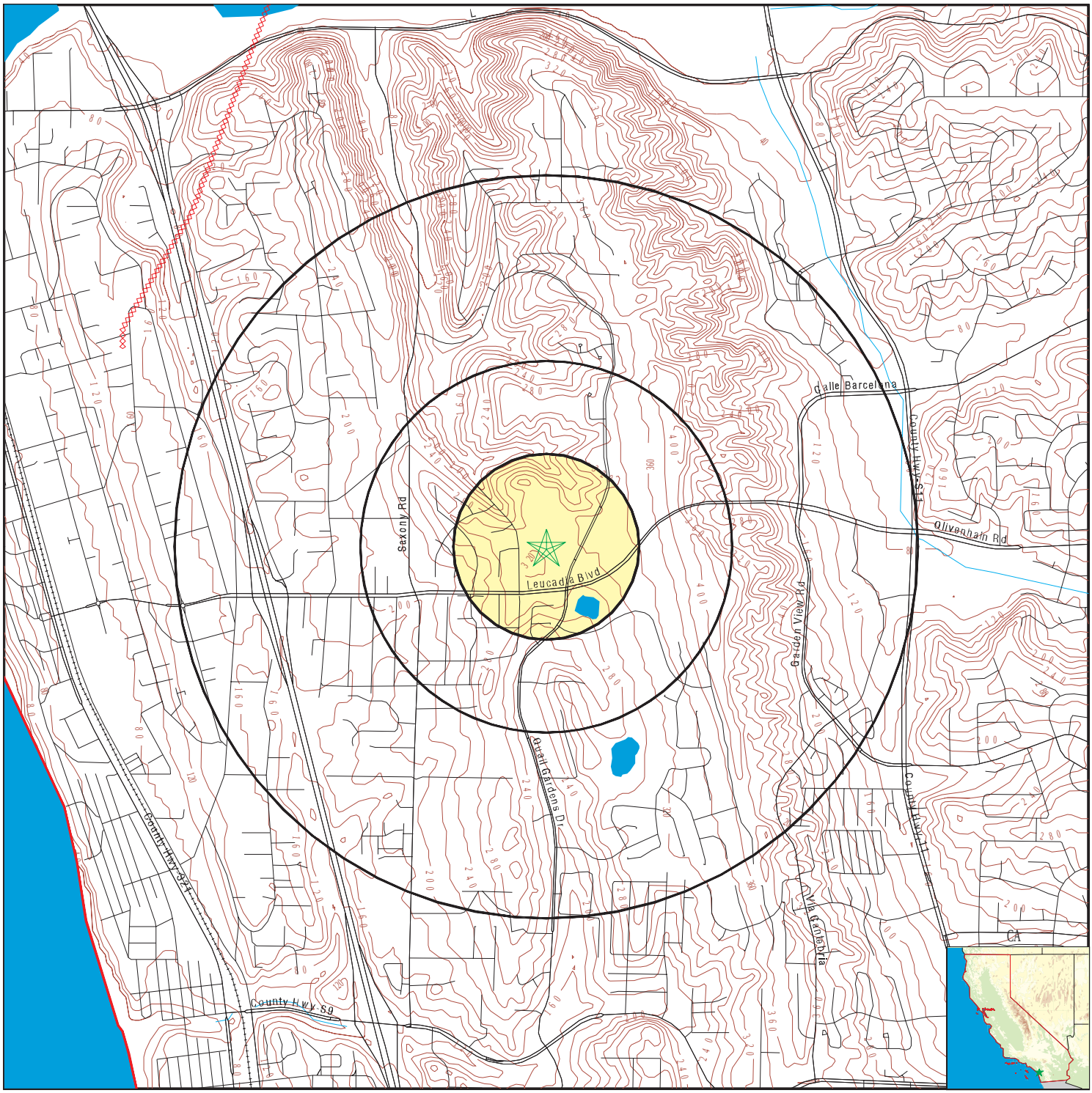
Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

No Wells Found

PHYSICAL SETTING SOURCE MAP - 5844479.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

N

SITE NAME:	Fox Point Farms	CLIENT:	Geotek
ADDRESS:	1150 Quail Gardens Drive Encinitas CA 92024	CONTACT:	Chris Livesey
		INQUIRY #:	5844479.2s
LAT/LONG:	33.066993 / 117.279328	DATE:	October 25, 2019 1:57 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92024	42	5

Federal EPA Radon Zone for SAN DIEGO County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 92024

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.700 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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Fox Point Farms
1150 Quail Gardens Drive
Encinitas, CA 92024

Inquiry Number: 5844479.3
October 25, 2019

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

10/25/19

Site Name:

Fox Point Farms
1150 Quail Gardens Drive
Encinitas, CA 92024
EDR Inquiry # 5844479.3

Client Name:

Geotek
1548 North Maple Street
Corona, CA 92880
Contact: Chris Livesey

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Geotek were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 8413-4130-9401

PO # NA

Project 3611-SD Fox Point Farms

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 8413-4130-9401

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Fox Point Farms
1150 Quail Gardens Drive
Encinitas, CA 92024

Inquiry Number: 5844479.4
October 25, 2019

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

10/25/19

Site Name:	Client Name:
Fox Point Farms	Geotek
1150 Quail Gardens Drive	1548 North Maple Street
Encinitas, CA 92024	Corona, CA 92880
EDR Inquiry # 5844479.4	Contact: Chris Livesey

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Geotek were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:		*Coordinates:*	
P.O.#	NA	**Latitude:**	33.066993 33° 4' 1" North
Project:	3611-SD Fox Point Farms	**Longitude:**	-117.279328 -117° 16' 46" West
		UTM Zone:	Zone 11 North
		UTM X Meters:	473926.04
		UTM Y Meters:	3658748.51
		Elevation:	316.74' above sea level

Maps Provided:

2012	1898
1997	1893
1975	
1968	
1949	
1948	
1947	
1901	

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets



Encinitas
2012
7.5-minute, 24000

1997 Source Sheets



Encinitas
1997
7.5-minute, 24000
Aerial Photo Revised 1997

1975 Source Sheets



Encinitas
1975
7.5-minute, 24000
Aerial Photo Revised 1975

1968 Source Sheets



Encinitas
1968
7.5-minute, 24000
Aerial Photo Revised 1967

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1949 Source Sheets



Encinitas
1949
7.5-minute, 24000
Aerial Photo Revised 1947

1948 Source Sheets



Encinitas
1948
7.5-minute, 24000
Aerial Photo Revised 1947

1947 Source Sheets



OCEANSIDE
1947
15-minute, 50000

1901 Source Sheets



Oceanside
1901
15-minute, 62500

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1898 Source Sheets



Oceanside
1898
15-minute, 62500

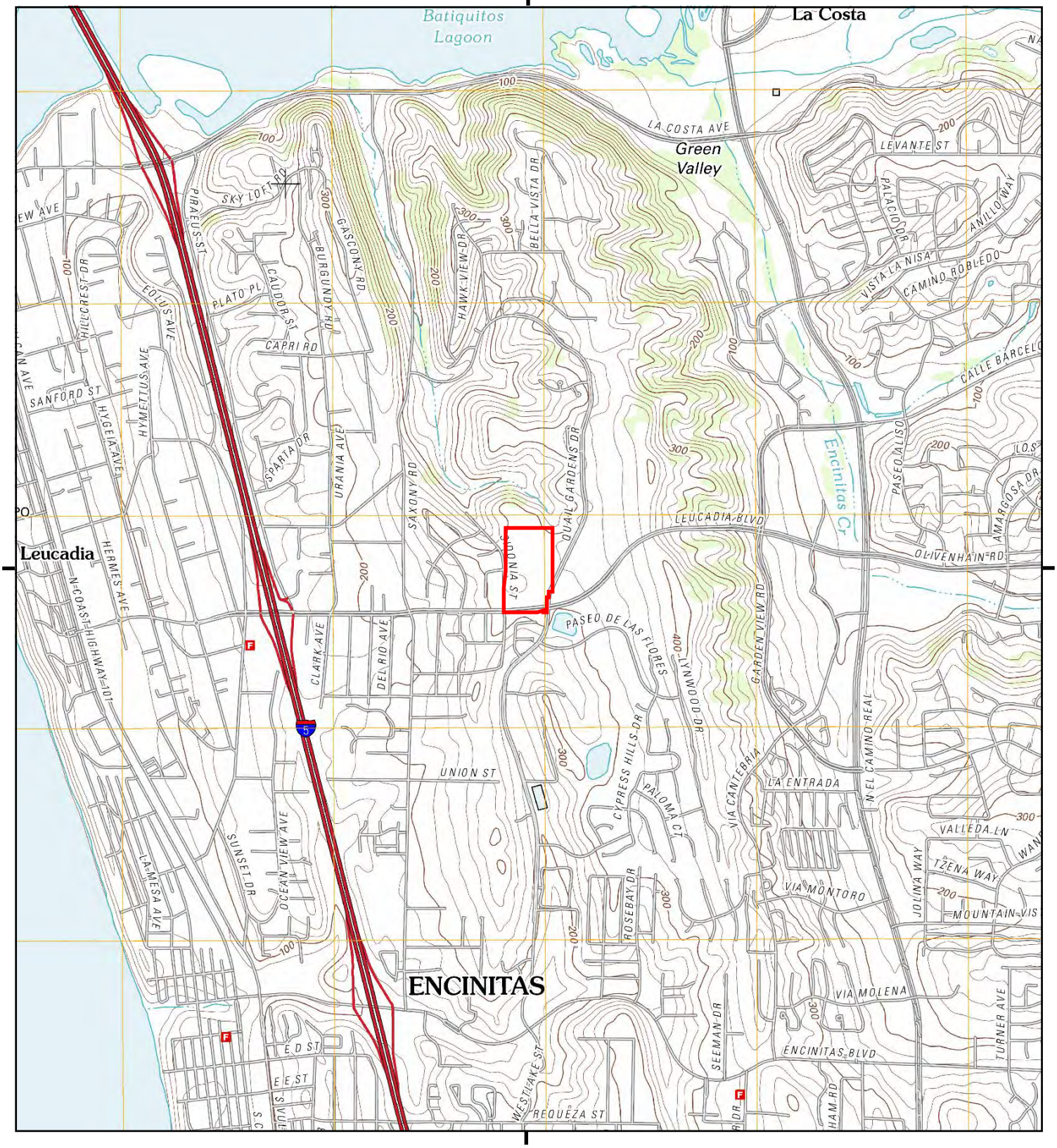
1893 Source Sheets



Oceanside
1893
15-minute, 62500

Historical Topo Map

2012



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

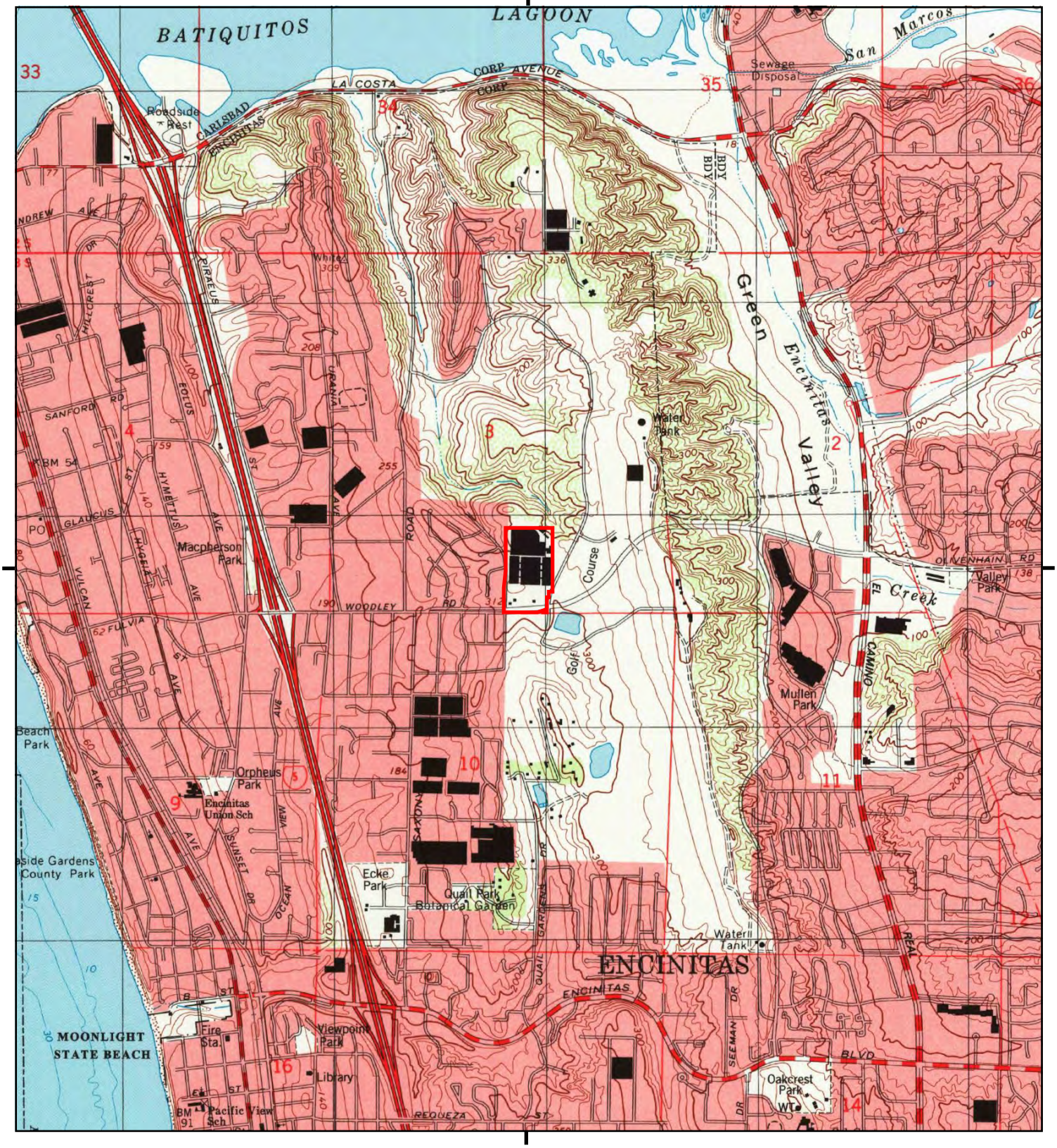
TP, Encinitas, 2012, 7.5-minute

SITE NAME: Fox Point Farms
ADDRESS: 1150 Quail Gardens Drive
Encinitas, CA 92024
CLIENT: Geotek

N

Historical Topo Map

1997



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

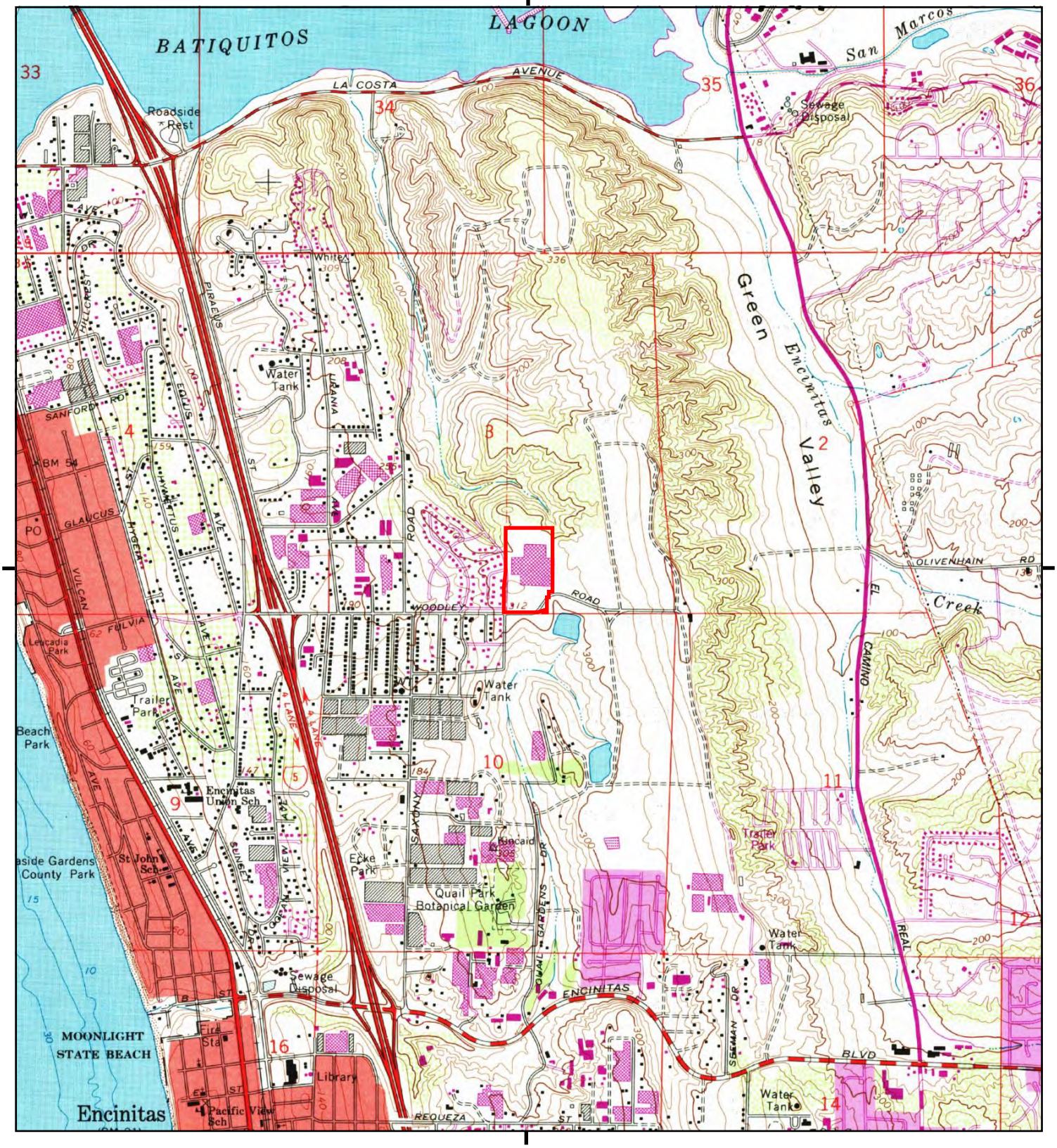
TP, Encinitas, 1997, 7.5-minute

SITE NAME: Fox Point Farms
ADDRESS: 1150 Quail Gardens Drive
Encinitas, CA 92024
CLIENT: Geotek

N

Historical Topo Map

1975



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

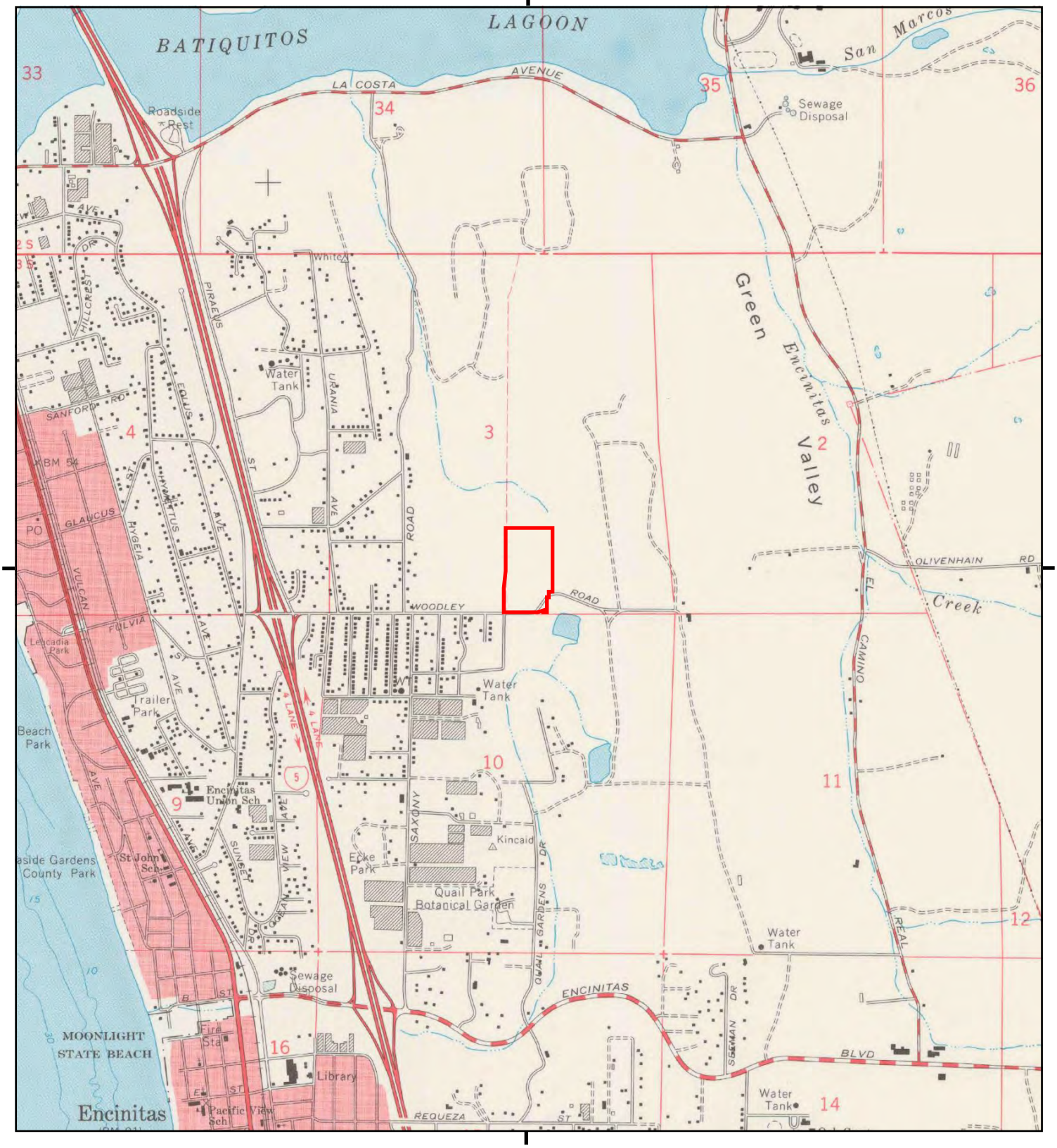
TP, Encinitas, 1975, 7.5-minute

SITE NAME: Fox Point Farms
ADDRESS: 1150 Quail Gardens Drive
Encinitas, CA 92024
CLIENT: Geotek

N

Historical Topo Map

1968



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

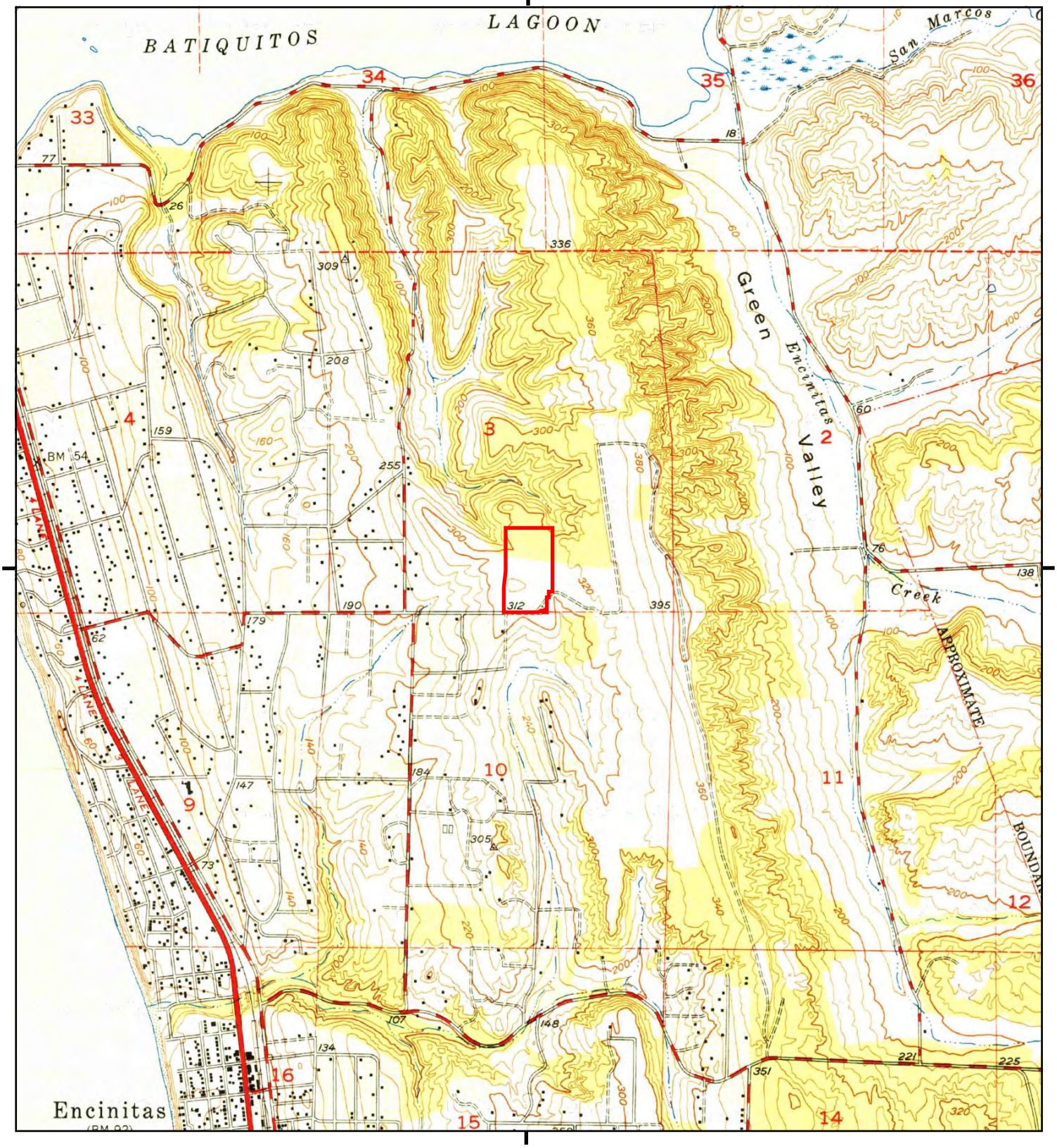
TP, Encinitas, 1968, 7.5-minute

SITE NAME: Fox Point Farms
ADDRESS: 1150 Quail Gardens Drive
Encinitas, CA 92024
CLIENT: Geotek

N

Historical Topo Map

1949



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

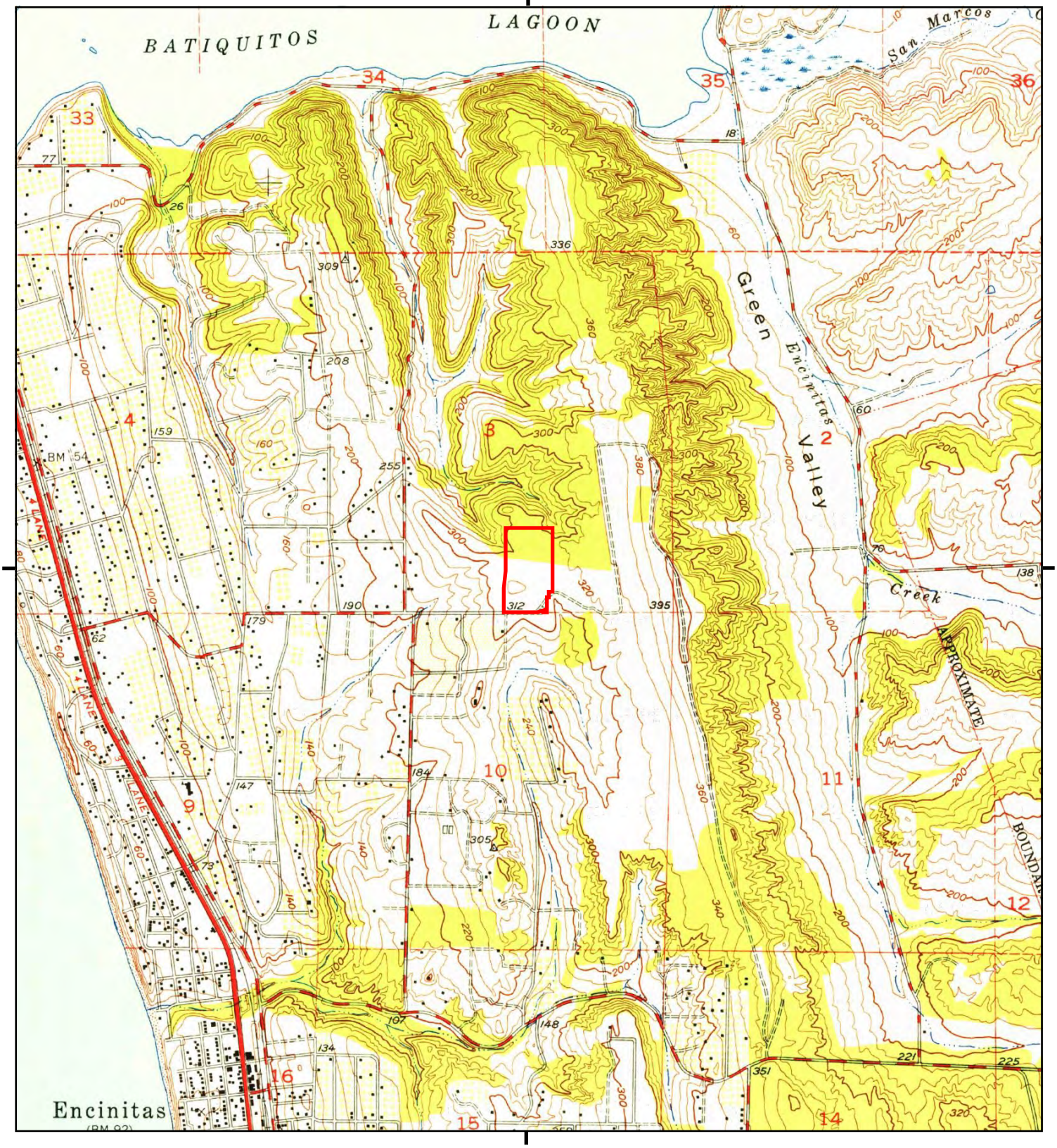
TP, Encinitas, 1949, 7.5-minute

SITE NAME: Fox Point Farms
ADDRESS: 1150 Quail Gardens Drive
Encinitas, CA 92024
CLIENT: Geotek

N

Historical Topo Map

1948



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

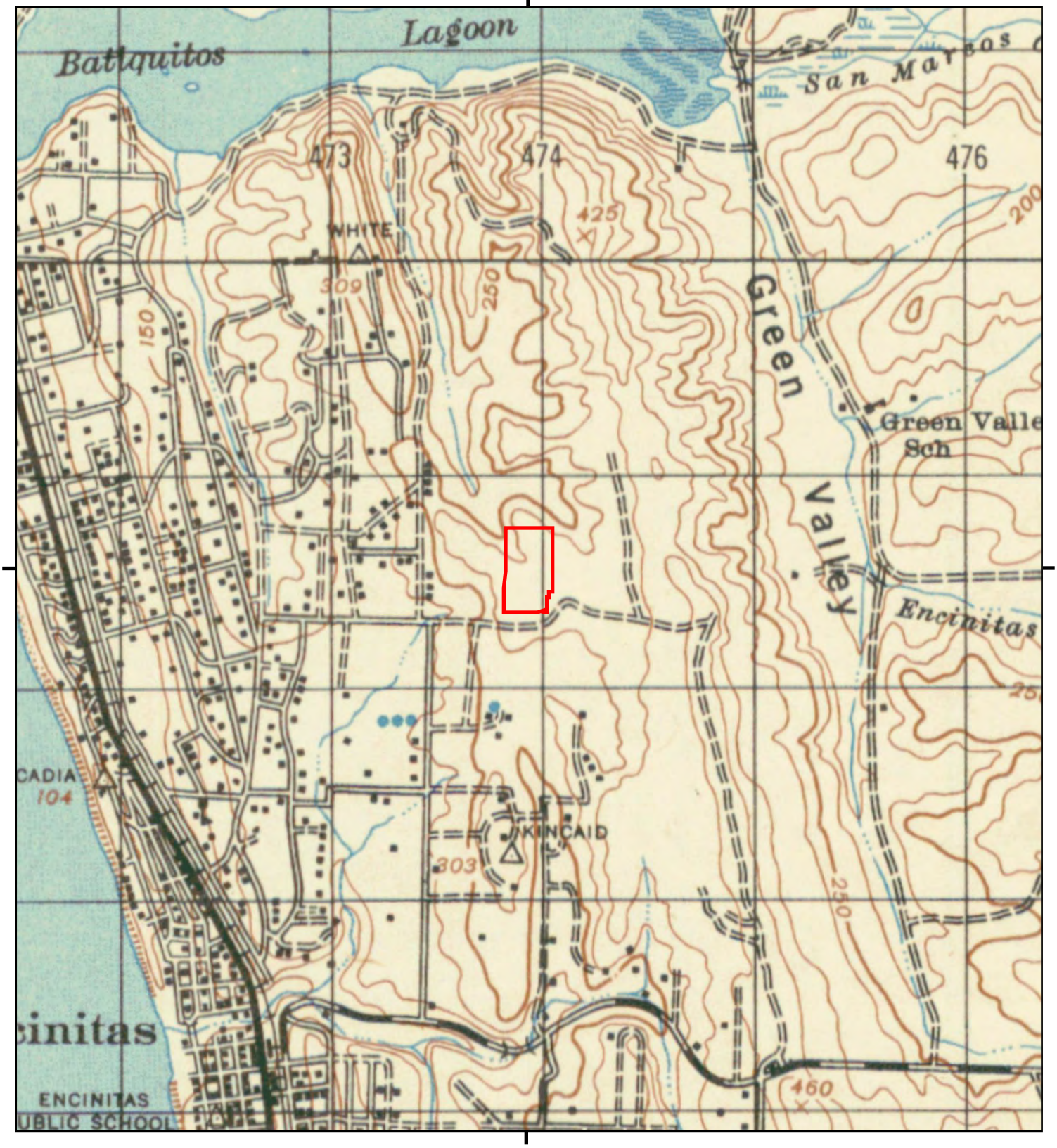
TP, Encinitas, 1948, 7.5-minute

SITE NAME: Fox Point Farms
ADDRESS: 1150 Quail Gardens Drive
Encinitas, CA 92024
CLIENT: Geotek

N

Historical Topo Map

1947



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, OCEANSIDE, 1947, 15-minute

SITE NAME: Fox Point Farms
ADDRESS: 1150 Quail Gardens Drive
Encinitas, CA 92024
CLIENT: Geotek

N

Historical Topo Map

1901



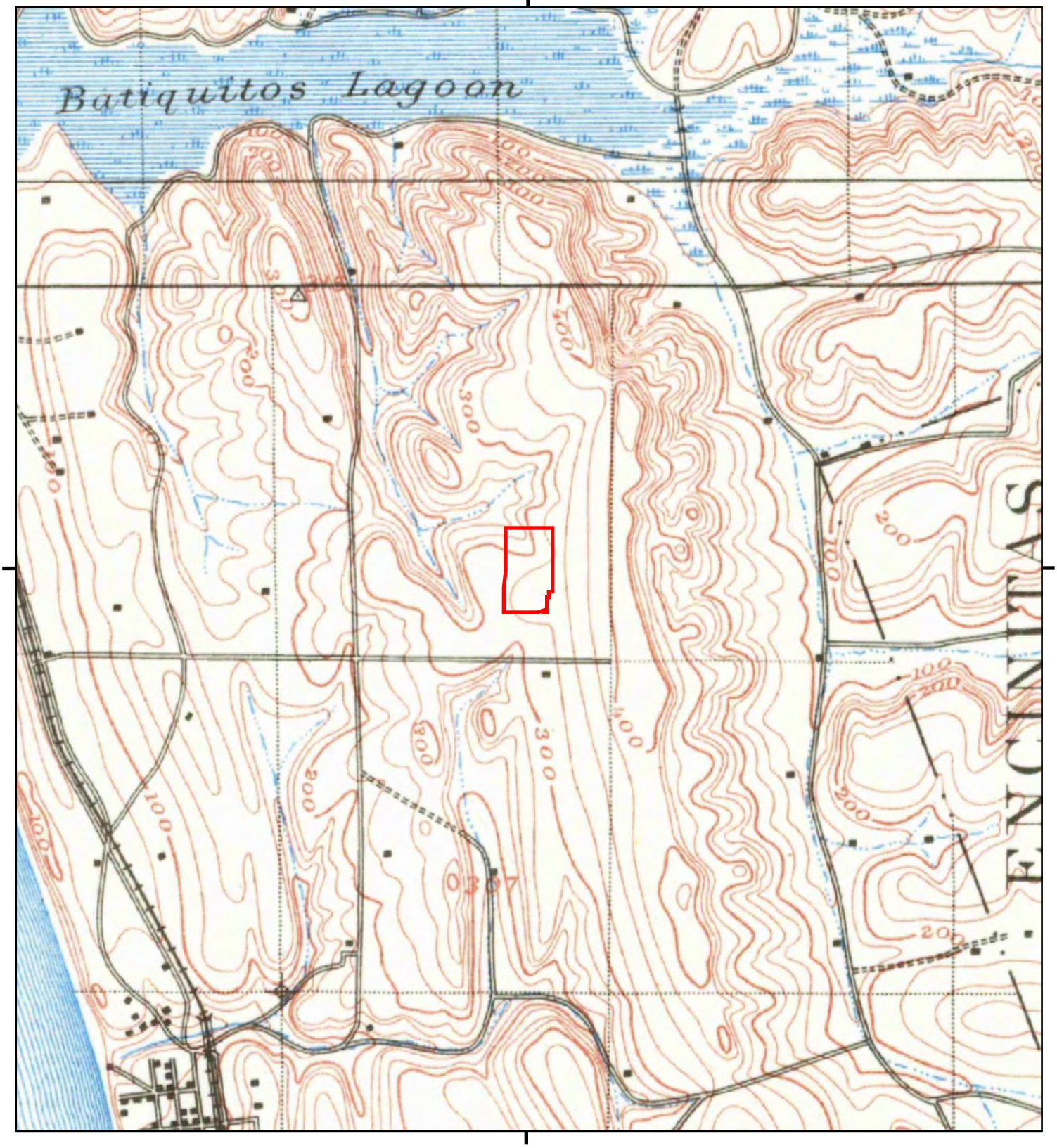
This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Oceanside, 1901, 15-minute

SITE NAME: Fox Point Farms
ADDRESS: 1150 Quail Gardens Drive
Encinitas, CA 92024
CLIENT: Geotek



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Oceanside, 1898, 15-minute

SITE NAME: Fox Point Farms
ADDRESS: 1150 Quail Gardens Drive
Encinitas, CA 92024
CLIENT: Geotek

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Oceanside, 1893, 15-minute

SITE NAME: Fox Point Farms
ADDRESS: 1150 Quail Gardens Drive
Encinitas, CA 92024
CLIENT: Geotek

N

Fox Point Farms

1150 Quail Gardens Drive

Encinitas, CA 92024

Inquiry Number: 5844479.11

October 25, 2019

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

10/25/19

Site Name:

Fox Point Farms
1150 Quail Gardens Drive
Encinitas, CA 92024
EDR Inquiry # 5844479.11

Client Name:

Geotek
1548 North Maple Street
Corona, CA 92880
Contact: Chris Livesey

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
1994	1"=500'	Acquisition Date: June 01, 1994	USGS/DOQQ
1990	1"=500'	Flight Date: September 06, 1990	USDA
1985	1"=500'	Flight Date: September 13, 1985	USDA
1979	1"=500'	Flight Date: February 13, 1979	EDR Proprietary Landiscor
1970	1"=500'	Flight Date: March 06, 1970	EDR Proprietary Landiscor
1966	1"=500'	Flight Date: November 02, 1966	USGS
1964	1"=500'	Flight Date: April 09, 1964	USDA
1953	1"=500'	Flight Date: April 14, 1953	USDA
1946	1"=500'	Flight Date: December 30, 1946	USGS
1939	1"=500'	Flight Date: April 16, 1939	USDA

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INQUIRY #: 5844479.11
YEAR: 2016
= 500'
N
EDR


INQUIRY #: 5844479.11
YEAR: 2012
= 500'
N
EDR


INQUIRY #: 5844479.11
YEAR: 2009
= 500'
N
EDR

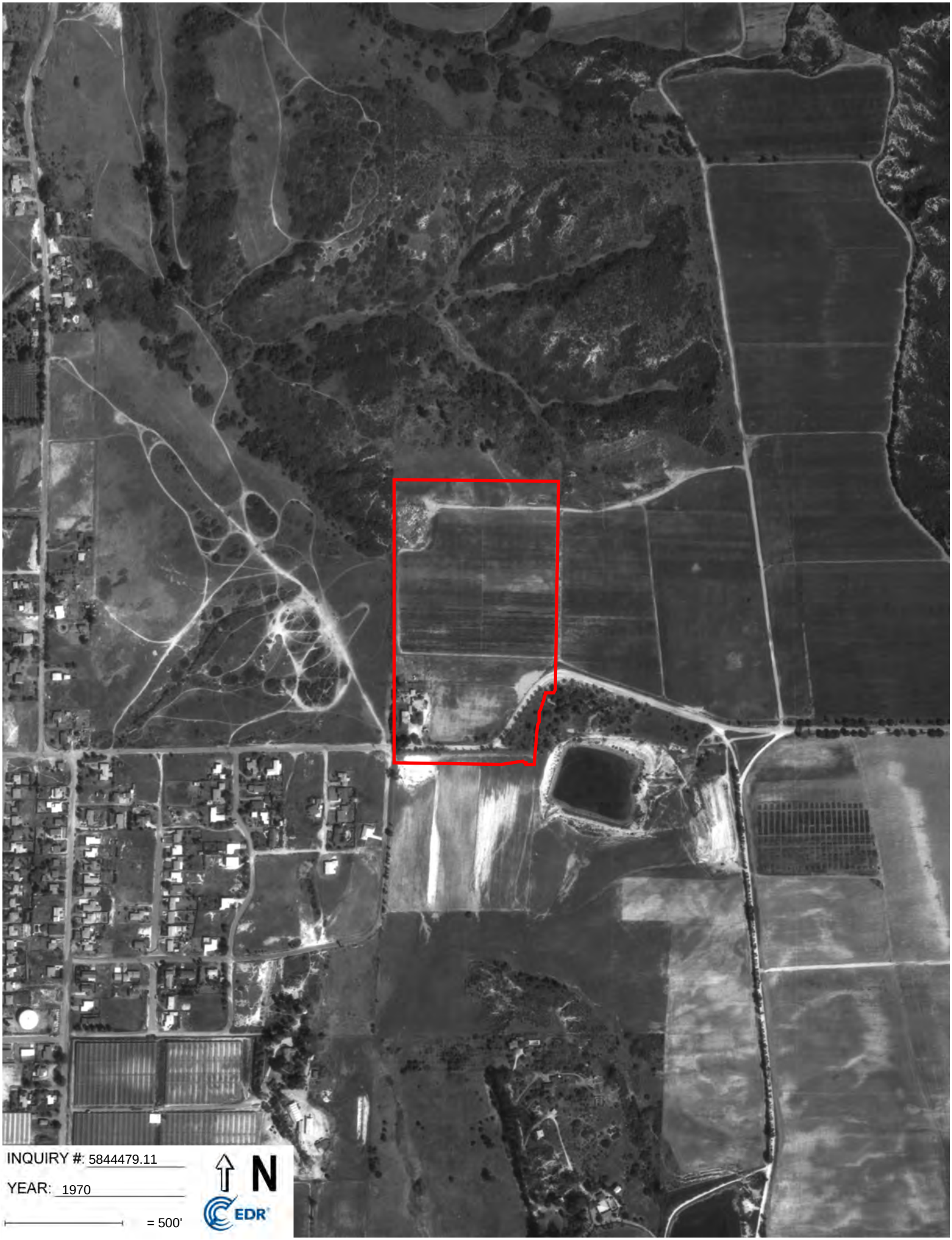

INQUIRY #: 5844479.11
YEAR: 2005
= 500'
N
EDR

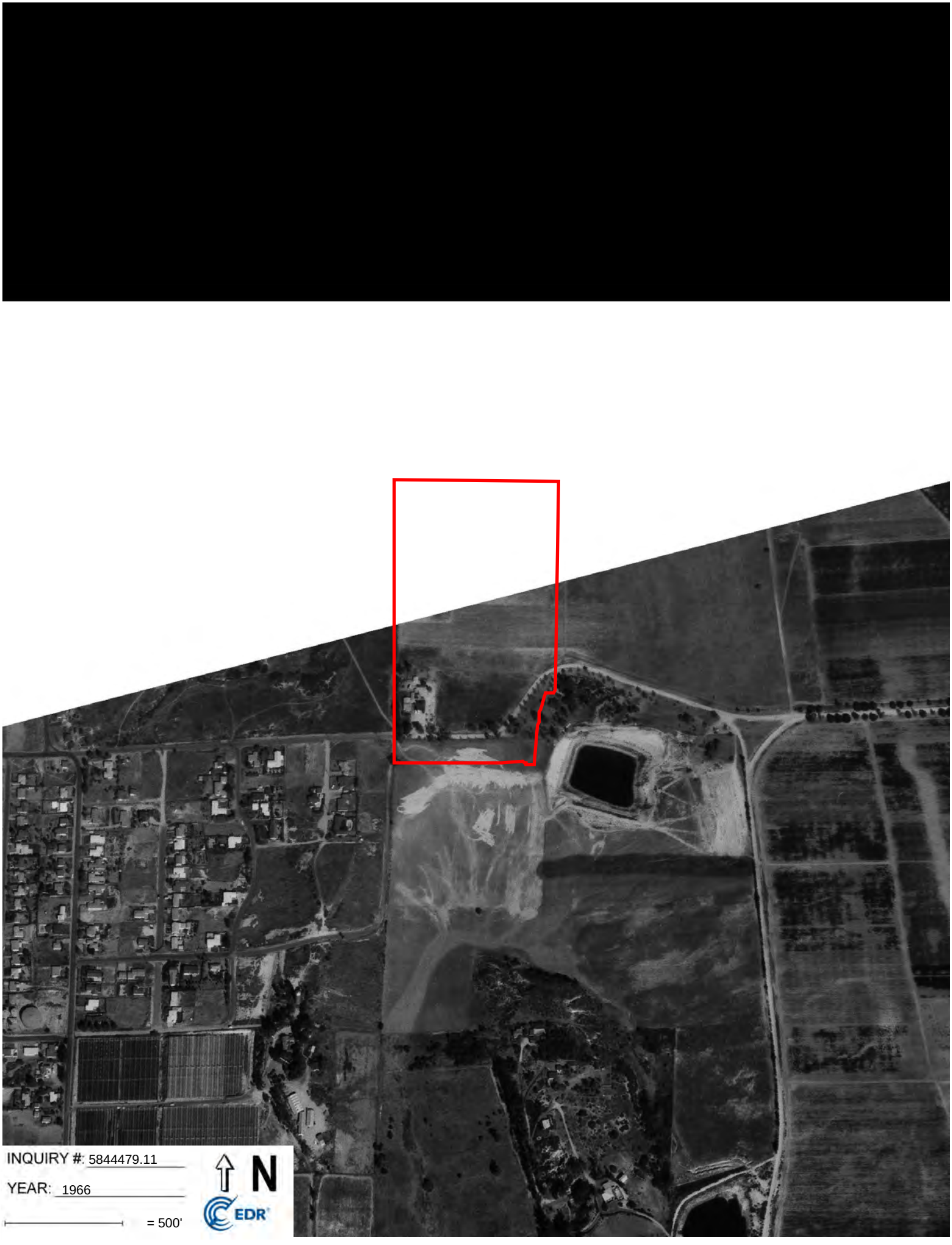

INQUIRY #: 5844479.11
YEAR: 1994
= 500'
N
EDR


INQUIRY #: 5844479.11
YEAR: 1990
= 500'
N
EDR


INQUIRY #: 5844479.11
YEAR: 1985
= 500'
N
EDR


INQUIRY #: 5844479.11
YEAR: 1979
= 500'
N
EDR


INQUIRY #: 5844479.11
YEAR: 1970
= 500'
N
EDR


INQUIRY #: 5844479.11
YEAR: 1966
= 500'
N
EDR


INQUIRY #: 5844479.11
YEAR: 1964
= 500'
N
EDR


INQUIRY #: 5844479.11
YEAR: 1953
= 500'
N
EDR


INQUIRY #: 5844479.11
YEAR: 1946
= 500'
N
EDR


INQUIRY #: 5844479.11
YEAR: 1939
= 500'
N
EDR

Fox Point Farms
1150 Quail Gardens Drive
Encinitas, CA 92024

Inquiry Number: 5844479.5
October 25, 2019

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

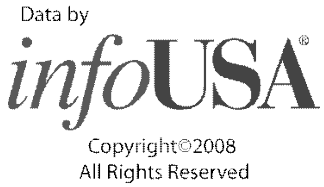
DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2014	☑	☐	EDR Digital Archive
2010	☑	☐	EDR Digital Archive
2005	☑	☐	EDR Digital Archive
2000	☑	☐	EDR Digital Archive
1995	☐	☐	Haines Criss-Cross Directory
1990	☐	☐	Haines Criss-Cross Directory
1985	☐	☐	Haines Criss-Cross Directory
1980	☐	☐	Haines Criss-Cross Directory
1977	☐	☐	Haines Criss-Cross Directory
1971	☐	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

1150 Quail Gardens Drive
Encinitas, CA 92024

Year	*CD Image*	*Source*	
QUAIL GARDENS DR			
2014	pg A1	EDR Digital Archive	
2010	pg A2	EDR Digital Archive	
2005	pg A3	EDR Digital Archive	
2000	pg A4	EDR Digital Archive	
1995	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1990	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1985	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1980	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1977	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1971	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

QUAIL GARDENS DR 2014

1150 D & E PROPAGATORS
FOXPOINT FARMS
PACIFIC FLOOD RESTORATION INC
SELECTA FIRST CLASS INC

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

QUAIL GARDENS DR 2010

1150 D & E PROPAGATORS
FOXPOINT FARMS
PACIFIC FLOOR RESTORATION
SELECTA FIRST CLASS INC

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

QUAIL GARDENS DR 2005

1150 D & E PROPAGATORS
SELECTA FIRST CLASS INC

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

QUAIL GARDENS DR 2000

1150 D & E PROPAGATORS

Fox Point Farms
1150 Quail Gardens Drive
Encinitas, CA 92024

Inquiry Number: 5844479.6
October 25, 2019

The EDR Property Tax Map Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

EDR Property Tax Map Report

Environmental Data Resources, Inc.'s EDR Property Tax Map Report is designed to assist environmental professionals in evaluating potential environmental conditions on a target property by understanding property boundaries and other characteristics. The report includes a search of available property tax maps, which include information on boundaries for the target property and neighboring properties, addresses, parcel identification numbers, as well as other data typically used in property location and identification.

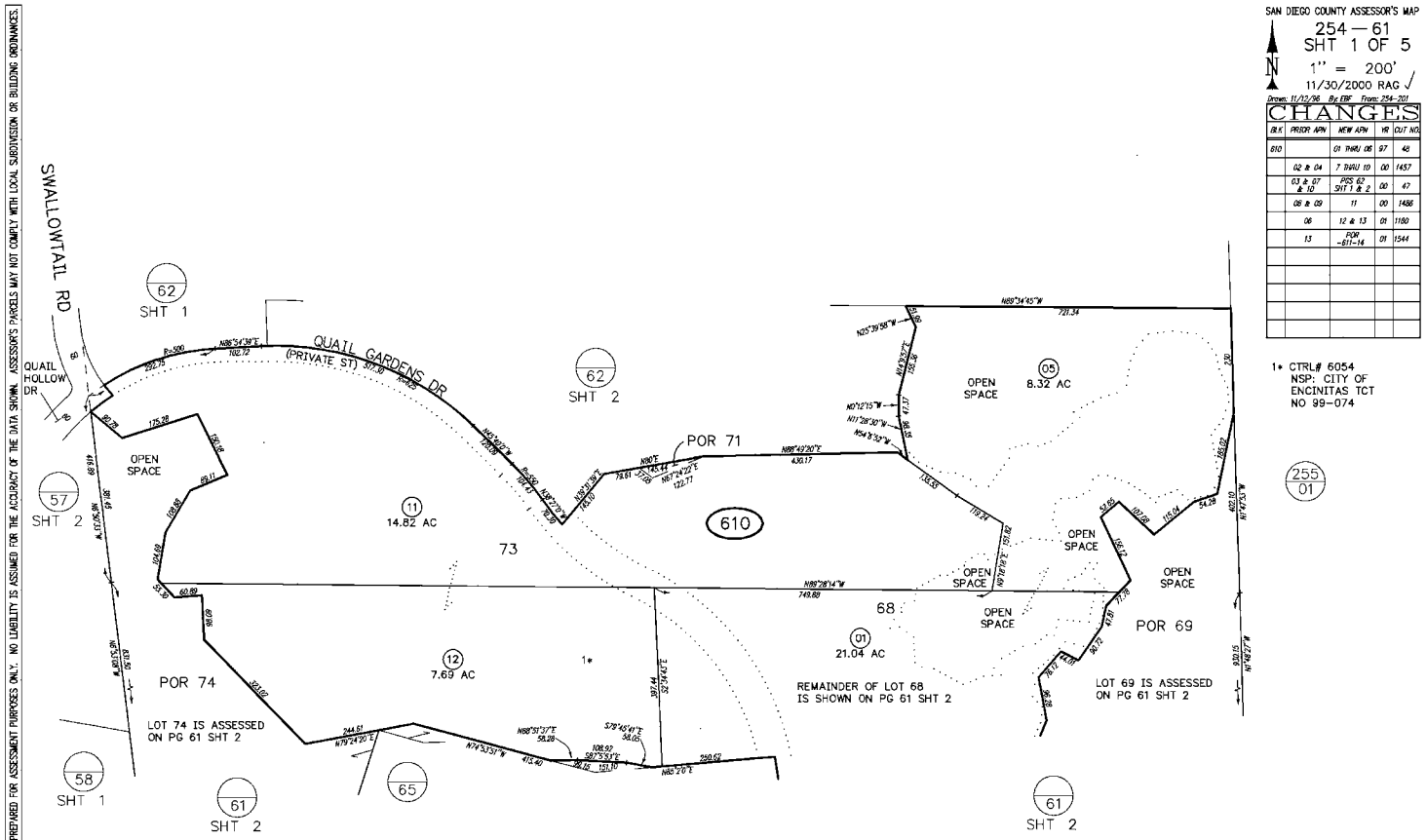
Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

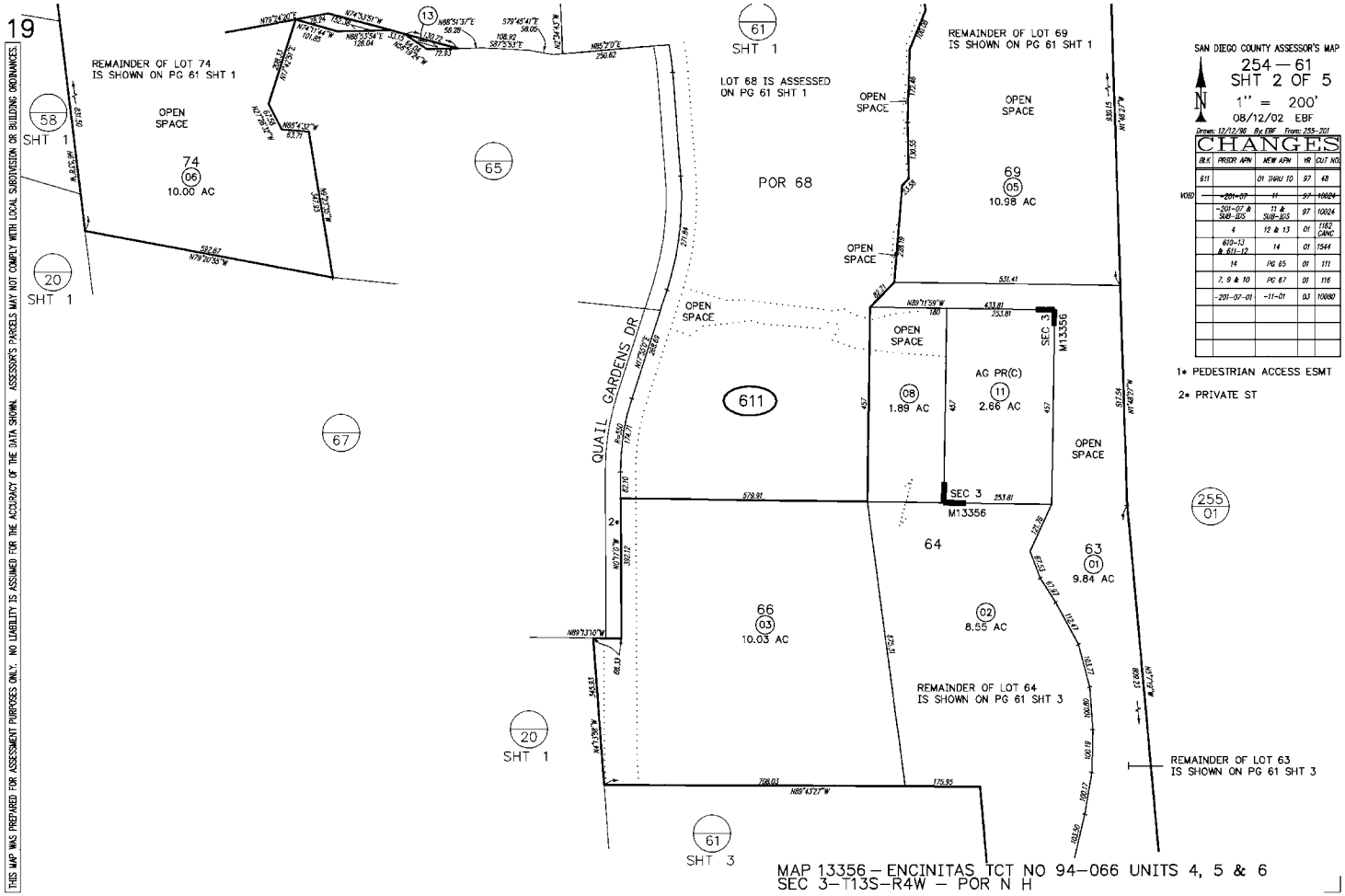
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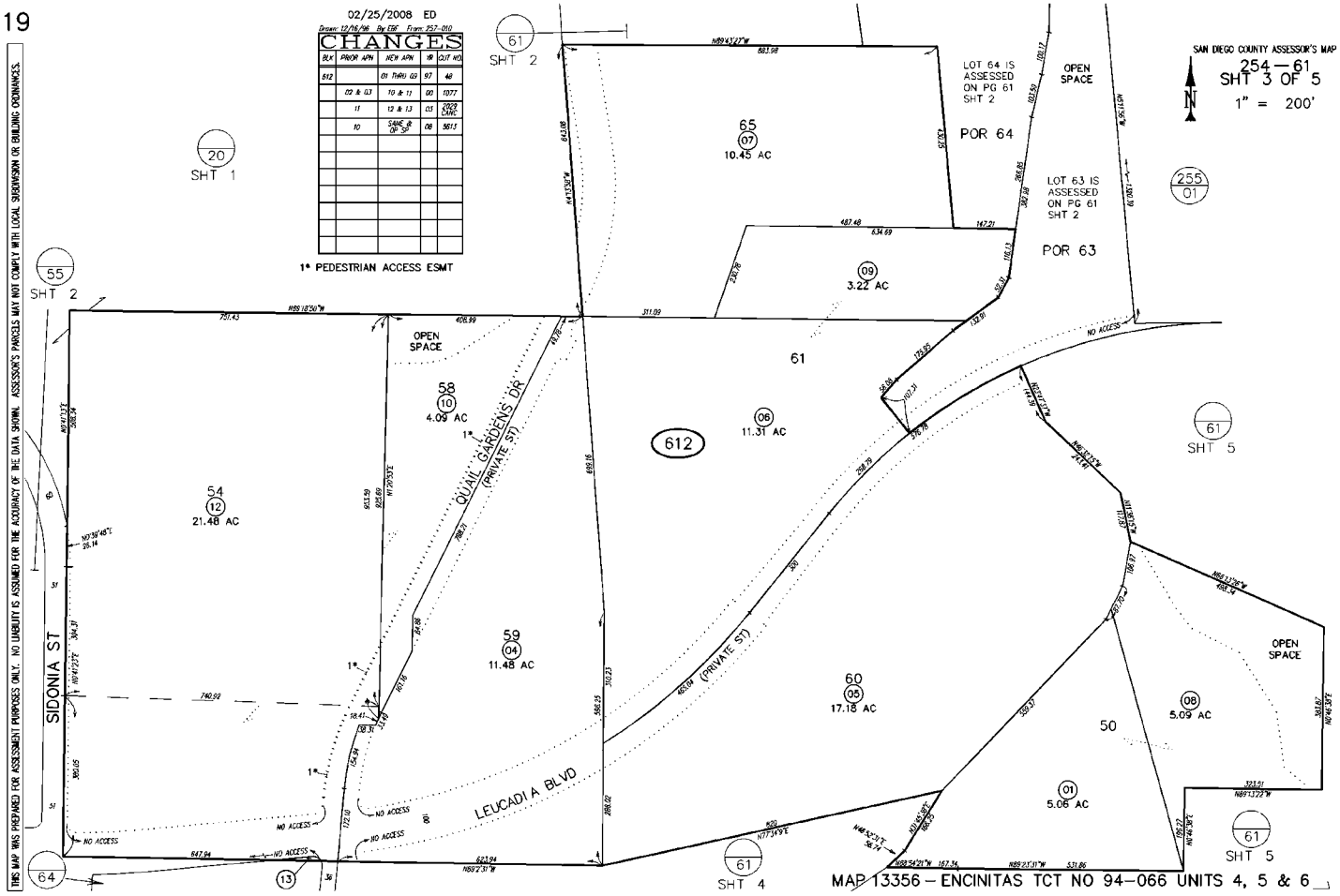
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SAN DIEGO COUNTY ASSESSOR'S MAP
254 — 61
SHT 1 OF 5
1" = 200'
11/30/2000 RAG
Drawn: 11/12/96 By: EBF From: 254-201
CHANGES
BLK | PRIOR APN | NEW APN | YR | CUT NO.
610 | | 01 THRU 06 | 97 | 48
| 02 & 04 | 7 THRU 10 | 00 | 1457
| 03 & 07 & 10 | PRS 62 SHT 1 & 2 | 00 | 47
| 06 & 09 | 11 | 00 | 1486
| 06 | 12 & 13 | 01 | 1180
| 13 | POR -811-14 | 01 | 1544
1* CTRL# 6054
NSP: CITY OF ENCINITAS TCT NO 99-074
SWALLOWTAIL RD
QUAIL HOLLOW DR
QUAIL GARDENS DR
(PRIVATE ST)
62 SHT 1
62 SHT 2
57 SHT 2
58 SHT 1
61 SHT 2
65
61 SHT 2
255 01
OPEN SPACE
8.32 AC
05
14.82 AC
11
73
610
POR 71
68
21.04 AC
01
7.69 AC
12
1*
POR 74
POR 69
LOT 74 IS ASSESSED ON PG 61 SHT 2
REMAINDER OF LOT 68 IS SHOWN ON PG 61 SHT 2
LOT 69 IS ASSESSED ON PG 61 SHT 2
MAP 13356 — ENCINITAS TCT NO 94-066 UNITS 4, 5 & 6

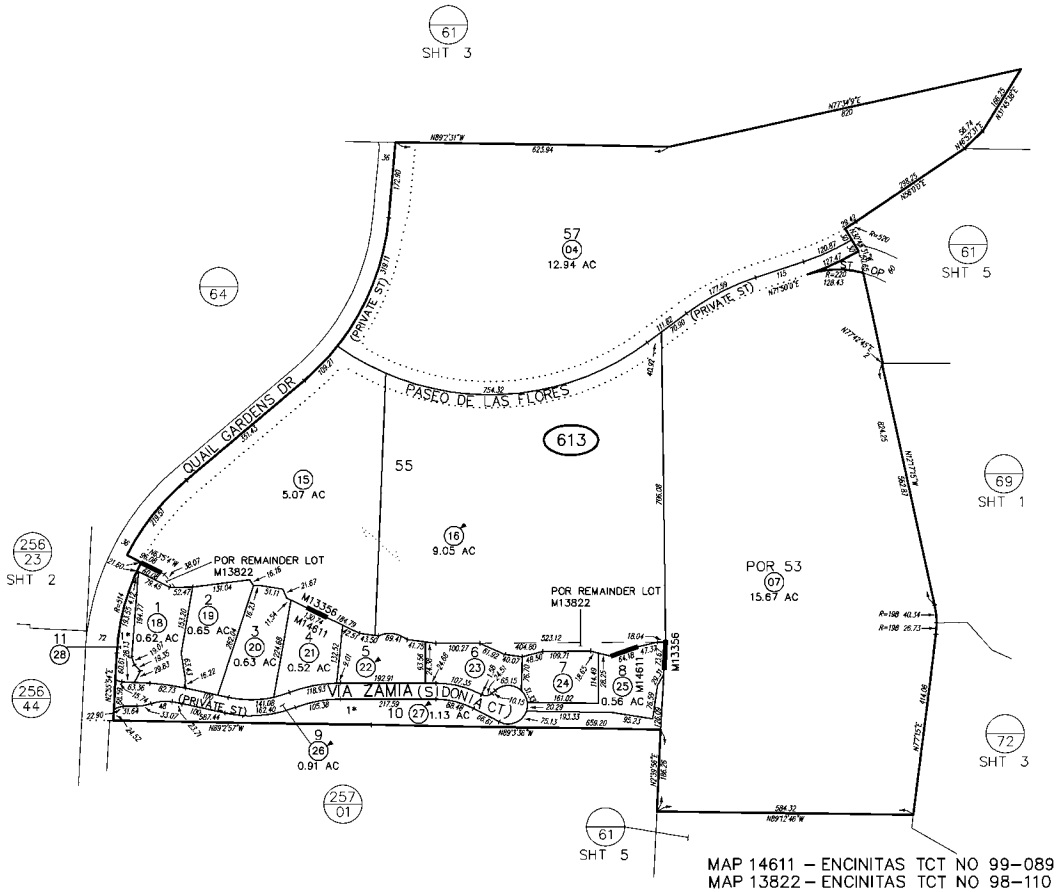

19
THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCELS MAY NOT COMPLY WITH LOCAL SUBDIVISION OR BUILDING ORDINANCES.
REMAINDER OF LOT 74
IS SHOWN ON PG 61 SHT 1
OPEN SPACE
74
06
10.00 AC
58
SHT 1
20
SHT 1
65
67
61
SHT 1
LOT 68 IS ASSESSED
ON PG 61 SHT 1
POR 68
REMAINDER OF LOT 69
IS SHOWN ON PG 61 SHT 1
OPEN SPACE
69
05
10.98 AC
QUAIL GARDENS DR
611
OPEN SPACE
AG PR(C)
08
1.89 AC
11
2.66 AC
SEC 3
M13356
64
63
01
9.84 AC
66
03
10.03 AC
02
8.55 AC
REMAINDER OF LOT 64
IS SHOWN ON PG 61 SHT 3
REMAINDER OF LOT 63
IS SHOWN ON PG 61 SHT 3
20
SHT 1
61
SHT 3
SAN DIEGO COUNTY ASSESSOR'S MAP
254 — 61
SHT 2 OF 5
1" = 200'
08/12/02 EBF
Draws: 12/12/98 By: EBF From: 255-201
CHANGES
BLK | PRIOR APN | NEW APN | YR | CUT NO.
611 | | 01 THRU 10 | 97 | 48
VOID | -201-07- | -11- | 97 | 10024
-201-07 & 5681-825 | 11 & SUB-825 | 97 | 10024
4 | 12 & 13 | 01 | 1182 CANC
610-13 & 611-12 | 14 | 01 | 1544
14 | PG 65 | 01 | 111
7, 9 & 10 | PG 67 | 01 | 116
-201-07-01 | -11-01 | 03 | 10080
1* PEDESTRIAN ACCESS ESMT
2* PRIVATE ST
255
01
MAP 13356 — ENCINITAS TCT NO 94-066 UNITS 4, 5 & 6
SEC 3-T13S-R4W — POR N H

19


02/25/2008 ED
CHANGES
1" PEDESTRIAN ACCESS ESMT
SAN DIEGO COUNTY ASSESSOR'S MAP
254 – 61
SHT 3 OF 5
1" = 200'
LOT 64 IS ASSESSED ON PG 61 SHT 2
LOT 63 IS ASSESSED ON PG 61 SHT 2
OPEN SPACE
POR 64
POR 63
65
10.45 AC
09
3.22 AC
61
58
4.09 AC
06
11.3T AC
612
54
21.48 AC
59
11.48 AC
60
17.18 AC
50
08
5.09 AC
01
5.08 AC
SIDONIA ST
QUAIL GARDENS DR (PRIVATE ST)
LEUCADIA BLVD (PRIVATE ST)
NO ACCESS
SHT 1
SHT 2
SHT 4
SHT 5
MAP 13356 – ENCINITAS TCT NO 94-066 UNITS 4, 5 & 6
THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCELS MAY NOT COMPLY WITH LOCAL SUBDIVISION OR BUILDING ORDINANCES.

19

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SAN DIEGO COUNTY ASSESSOR'S MAP
254 — 61
SHT 4 OF 5
N
1" = 200'
9/04/13 MGC ✓
Drawn: 12/31/96 By: EBF From: 257-010

CHANGES

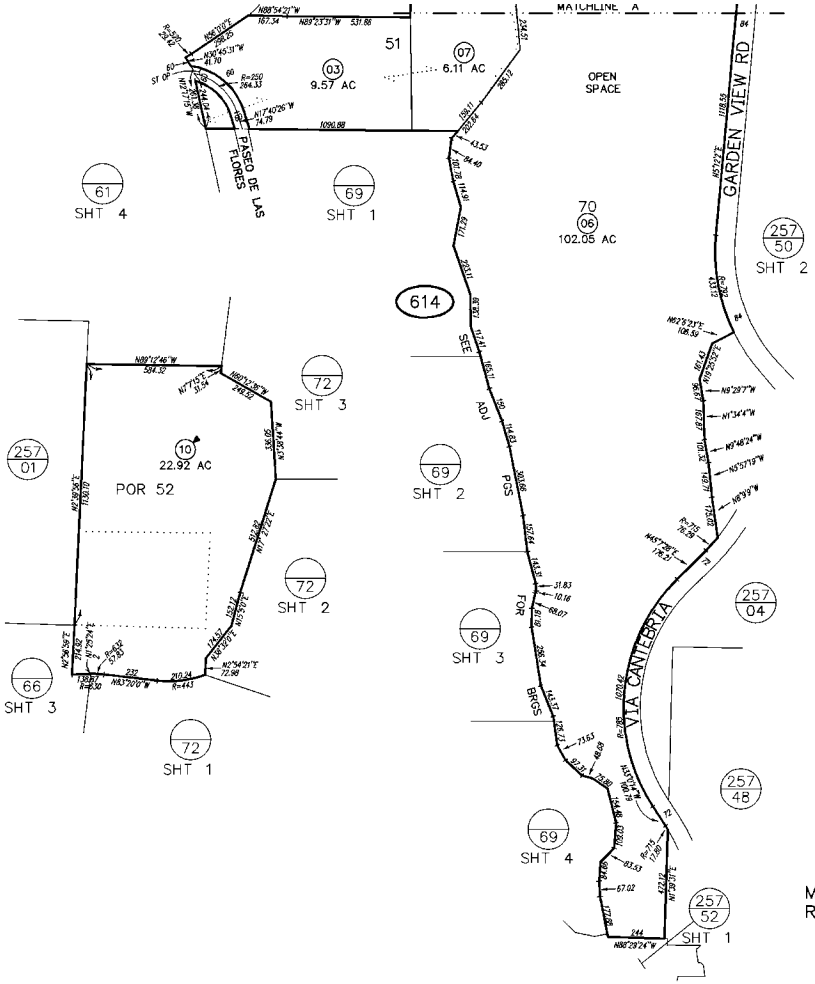
BLK	PRIOR APN	NEW APN	YR	CUT NO
613		01 THRU 05	97	48
	03	06 & PG 64	00	93
	01	SAME & 57.08	01	4616
	01	07 & -690-57 &	02	1669
		POR -681-09		
	02, 05 & 06	08 THRU 14	03	1423
	08 THRU 14	15 THRU 17	03	1278
	17	18 THRU 28	04	73

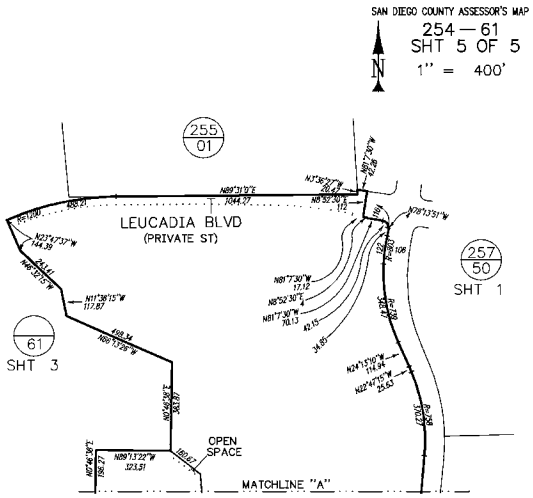
1* OPEN SPACE

MAP 14611 – ENCINITAS TCT NO 99-089 SIDONIA EAST CUSTOM LOTS
MAP 13822 – ENCINITAS TCT NO 98-110
MAP 13356 – ENCINITAS TCT NO 94-066 UNITS 4, 5 & 6
ROS 17403

19

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1/21/2003 ESW

Drawn: 1/02/97 By: EBF From: 257-010

CHANGES

BLK	PRIOR APN	NEW APN	YR	CUT NO.
614		01 THRU 08	1997	48
	01, 02 & 05	PG 58	01	57
	03	SAME & ST 09	02	4658
	04	09 & POR -681-09	02	1689
	08 & 09	10	03	2166

MAP 13356 — ENICINITAS TCT NO 94-066 UNITS 4, 5 & 6
ROS 17403

Fox Point Farms
1150 Quail Gardens Drive
Encinitas, CA 92024

Inquiry Number: 5844479.7
October 28, 2019

EDR Environmental Lien and AUL Search

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

EDR Environmental Lien and AUL Search

The EDR Environmental Lien and AUL Search Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EDR Environmental Lien and AUL Search

TARGET PROPERTY INFORMATION

ADDRESS

1150 Quail Gardens Drive
Fox Point Farms
Encinitas, CA 92024

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

AULs: Found ☐ Not Found ☒

RESEARCH SOURCE

Source 1:

SAN DIEGO COUNTY RECORDER
San Diego, CA

PROPERTY INFORMATION

Deed 1:

Type of Deed:	GRANT DEED
Title is vested in:	R E L S INC
Title received from:	PAUL ECKE JR ETAL
Deed Dated	8/27/1998
Deed Recorded:	1/22/1999
Book:	NA
Page:	NA
Volume:	NA
Instrument:	1999-0036121
Docket:	NA
Land Record Comments:	
Miscellaneous Comments:	
Legal Description:	SEE EXHIBIT
Legal Current Owner:	R E L S INC
Parcel # / Property Identifier:	254-612-12-00
Comments:	SEE EXHIBIT

Deed Exhibit 1

RECORDED REQUEST OF FIRST AMERICAN TITLE
SUBDIVISION MAPPING DEPARTMENT
RECORDING REQUESTED BY
FIRST AMERICAN TITLE INS. CO.
AND WHEN RECORDED MAIL TO:
R.E.L.S., INC.
ATTN: ROBERT J. ECHTER
P.O. Box 816
Encinitas, CA 92024

1872

1999-0036121

DOC # 1999-0036121

Jan 22, 1999 8:00 AM

OFFICIAL RECORDS
SAN DIEGO COUNTY RECORDER'S OFFICE
GREGORY J. SMITH, COUNTY RECORDER
FEES: 61.00
OC: AFNF

Space Above This Line for Recorder's Use

A.P.N.: 254-612-03 Order No.: 1186790-20 Escrow No.: 98-7014JD

GRANT DEED

THE UNDERSIGNED GRANTOR(s) DECLARE(s) THAT DOCUMENTARY TRANSFER TAX IS: COUNTY _____
[ ] computed on full value of property conveyed, or
[ ] computed on full value less value of liens or encumbrances remaining at time of sale,
[ ] unincorporated area; [X] City of Encinitas, and

FOR A VALUABLE CONSIDERATION, Receipt of which is hereby acknowledged,

PAUL ECKE, JR., TRUSTEE, PAUL ECKE, JR., TRUST DATED AUGUST 7, 1997, as to an undivided 50% interest; LIZBETH A. ECKE, TRUSTEE OF THE LIZBETH A. ECKE TRUST DATED MARCH 31, 1994 as to an undivided 25% interest; P.E. III PROPERTIES LLC, a California limited liability company as to an undivided 25% interest

hereby GRANT(S) to
R.E.L.S., INC., a California corporation

the following described property in the City of **Encinitas**, County of **San Diego** State of California;

Legal Description as per Exhibit "A" attached hereto and incorporated herein.
Exhibit "1" attached hereto and made a part hereof.

August 27, 1998

PAUL ECKE, JR., TRUSTEE, PAUL ECKE, JR., TRUTE DATED AUGUST 7, 1997

By: _____
PAUL ECKE, JR., TRUSTEE

LIZBETH A. ECKE, TRUSTEE OF THE LIZBETH A. ECKE TRUST DATED MARCH 31, 1994

By: _____
LIZBETH A. ECKE, TRUSTEE

P.E. III PROPERTIES LLC, a California limited liability company

By: _____
PAUL ECKE III, TRUSTEE OF THE PAUL ECKE, III REVOCABLE TRUST, DATED SEPTEMBER 22, 1989

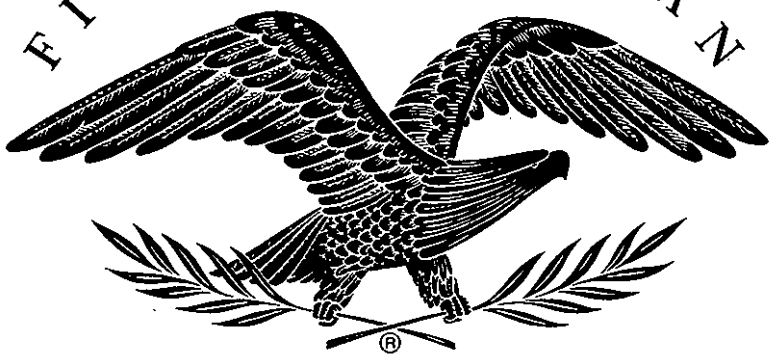
GRANTEE(S) ACCEPTANCE WHICH INCLUDE THE ATTACHED EXHIBITS

R.E.L.S., INC., a California corporation

By: _____
ROBERT ECHTER, PRESIDENT

Mail Tax Statements to: SAME AS ABOVE or Address Noted Below

FIRST AMERICAN 1873



STATE OF CALIFORNIA }
COUNTY OF SAN DIEGO } ss.

On JANUARY 21, 1999, before me, MARY V LAUDERDALE,
personally appeared ROBERT ECHTER----------
, personally known to me
(or 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.

WITNESS my hand and official seal.

Signature Mary V Lauderdale

MARY V. LAUDERDALE
Commission # 1161574
Notary Public - California
San Diego County
My Comm. Expires Nov 13, 2001

(This area for official notarial seal)

Title of Document GRANT DEED
Date of Document 08-27-98 No. of Pages
Other signatures not acknowledged

STATE OF CALIFORNIA)SS
COUNTY OF SAN DIEGO)

On 5 JANUARY, 1999 before me, JOYCE MIZOCK, NOTARY PUBLIC,
personally appeared PAUL ECKE III, TRUSTEE,
personally known to me (~~or 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.

WITNESS my hand and official seal.

Signature Joyce Mizock

JOYCE MIZOCK
Comm. # 1096783
NOTARY PUBLIC-CALIFORNIA
SAN DIEGO COUNTY
My Comm. Exp. May 1, 2000

This area for official notarial seal.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

1875

State of CALIFORNIA

County of SAN DIEGO

On JANUARY 7, 1999 (Date) before me, KAREN A. PHELPS, NOTARY PUBLIC (Name and Title of Officer (e.g., "Jane Doe, Notary Public"))

personally appeared LIZBETH A. ECKE (Name(s) of Signer(s)),

☒ personally known to me – OR – ☐ 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.

KAREN A. PHELPS
Commission # 1169873
Notary Public - California
San Diego County
My Comm. Expires Jan 16, 2002

WITNESS my hand and official seal.

Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: GRANT DEED

Document Date: AUGUST 27, 1998 Number of Pages: 1 PLUS EXH.

Signer(s) Other Than Named Above: PAUL ECKE, JR., PAUL ECKE III

Capacity(ies) Claimed by Signer(s)

Signer's Name: LIZBETH A. ECKE

☐ Individual
☐ Corporate Officer
Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Attorney-in-Fact
☒ Trustee
☐ Guardian or Conservator
☐ Other: _____

Signer Is Representing:

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer's Name: _____

☐ Individual
☐ Corporate Officer
Title(s): _____
☐ Partner — ☐ Limited ☐ General
☐ Attorney-in-Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: _____

Signer Is Representing:

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

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1876

CALIFORNIA ALL-PURPOSE ACKNOWLEDGEMENT

State of California }
} **ss.**
County of San Diego }

On, **January 11, 1999,** before me, **Joyce Mizock, Notary Public**, personally appeared **Paul Ecke Jr.,** personally known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity and that by his signature on the instrument the persons or the entities upon behalf of which the person acted, executed the instrument.

JOYCE MIZOCK
Comm. # 1096783
NOTARY PUBLIC-CALIFORNIA
SAN DIEGO COUNTY
My Comm. Exp. May 1, 2000

WITNESS my hand and official seal.

Joyce Mizock
SIGNATURE OF NOTARY

CAPACITY CLAIMED BY SIGNER(S)	DESCRIPTION OF DOCUMENT
TRUSTEE	GRANT DEED
TITLE	TITLE OR TYPE OF DOCUMENT
PAUL ECKE JR. TRUST DATED AUGUST 7, 1997	1 (ONE)
REPRESENTING	NUMBER OF PAGES
	AUGUST 27, 1998
TITLE	DATE OF DOCUMENT
REPRESENTING	SIGNERS OTHER THAN THOSE NAMED

EXHIBIT "A"

PARCEL 1

LOT 58 OF CITY OF ENCINITAS TRACT NO. 94-066 UNITS 4, 5 AND 6, IN THE CITY OF ENCINITAS, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 13356, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, SEPTEMBER 4, 1996.

EXCEPTING THEREFROM THAT PORTION DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHERLY NORTHWEST CORNER OF SAID LOT 58; THENCE SOUTH 01°20'53" WEST 953.59 FEET ALONG THE WESTERLY LINE OF SAID LOT AND ITS SOUTHERLY PROLONGATION TO THE EASTERLY BOUNDARY OF SAID LOT; THENCE ALONG SAID BOUNDARY THE FOLLOWING COURSES: NORTHERLY 15.09 FEET ALONG A NONTANGENT CURVE CONCAVE EASTERLY HAVING A RADIUS OF 514.00 FEET, A RADIAL LINE TO THE BEGINNING OF SAID CURVE BEARS, NORTH 65°13'52" WEST, THROUGH A CENTRAL ANGLE OF 1°40'54". NORTH 26°27'02" EAST 161.16 FEET, NORTH 01°20'53" EAST 84.86 FEET, NORTH 26°27'02" EAST 788.21 FEET AND NORTH 89°18'50" WEST 408.99 FEET TO THE POINT OF BEGINNING.

PARCEL 2

AN EASEMENT FOR INGRESS AND EGRESS, FENCING, PARKING, UTILITIES, LANDSCAPING, DRAINAGE, AND ANY OTHER USE PERMITTED UNDER THE APPLICABLE ZONING CODES, 10.00 FEET WIDE, OVER THAT PORTION OF PARCEL 58 OF LOT LINE ADJUSTMENT NO. 98-181 BA IN THE CITY OF ENCINITAS, COUNT OF SAN DIEGO, STATE OF CALIFORNIA RECORDED JANUARY 22, 1999, AS INSTRUMENT NO. 99-0036120 OF OFFICIAL RECORDS OF SAID COUNTY, THE WESTERLY LINE OF WHICH IS DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF SAID PARCEL; THENCE SOUTH 1°20'53" WEST 953.59 FEET ALONG THE WESTERLY LINE OF SAID PARCEL TO THE SOUTHERLY CORNER THEREOF.

EXCEPT THAT PORTION INCLUDED WITHIN QUAIL GARDENS DRIVE.

ADDITIONAL AGREEMENTS

GRANTOR AND GRANTEE ALSO ENTER INTO THE FOLLOWING AGREEMENTS, WHICH SHALL BE READ AND CONSTRUED TOGETHER WITH THE ABOVE GRANTS. GRANTOR AND GRANTEE INTEND THE FOLLOWING AGREEMENTS TO BE (i) COVENANTS RUNNING WITH THE LAND, BENEFITTING AND BURDENING AS APPLICABLE (a) PARCEL 1 AND THE ADJOINING PARCEL PRESENTLY OWNED BY GRANTEE AND DESCRIBED IN EXHIBIT "B" ATTACHED HERETO, AND (b) THE ADJOINING PARCEL PRESENTLY OWNED BY GRANTOR AND DESCRIBED IN EXHIBIT "C" ATTACHED HERETO AND (ii) BINDING UPON THE RESPECTIVE SUCCESSORS AND ASSIGNS OF GRANTOR AND GRANTEE.

1. GRANTEE SHALL BE RESPONSIBLE, AT GRANTEE'S SOLE EXPENSE, FOR MAINTAINING THE EASEMENT AREA IN GOOD CONDITION.

2. GRANTEE SHALL PROVIDE GENERAL LIABILITY INSURANCE COVERAGE REASONABLY ACCEPTABLE TO GRANTOR NAMING GRANTOR AS AN ADDITIONAL INSURED AND EVIDENCED BY A CERTIFICATE OF INSURANCE DELIVERED TO GRANTOR. SAID CERTIFICATE OF INSURANCE SHALL STATE THAT COVERAGE MAY ONLY BE CANCELLED UPON 30 DAYS PRIOR WRITTEN NOTICE TO GRANTOR.

3. GRANTEE SHALL PAY ALL REAL PROPERTY TAXES AND ASSESSMENTS ATTRIBUTABLE TO THE EASEMENT AREA, PRO RATA BASED ON THE SQUARE FOOTAGE OF THE EASEMENT AREA AND THE SQUARE FOOTAGE OF THE ASSESSOR'S PARCEL OF WHICH THE EASEMENT AREA IS A PART.

EXHIBIT "B"

LOT 54 OF ENCINITAS TRACT NO. 94-066 IN THE CITY OF ENCINTIAS, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA ACCORDING TO MAP NO. 13356 FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, SEPTEMBER 4, 1996.

EXHIBIT "C"

THAT PORTION OF LOT 58 OF ENCINITAS TRACT NO. 94-066 IN THE CITY OF ENCINITAS, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA ACCORDING TO MAP NO. 13356 FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, SEPTEMBER 4, 1996, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHERLY NORTHWEST CORNER OF SAID LOT; THENCE, SOUTH 01°20'53" WEST 953.59 FEET ALONG THE WESTERLY LINE OF SAID LOT AND ITS SOUTHERLY PROLONGATION TO THE EASTERLY COUNDARY OF SAID LOT, THENCE ALONG SAID BOUNDARY THE FOLLOWING COURSES: NORTHERLY 15.09 FEET ALONG A NONTANGENT CURVE CONCAVE EASTERLY HAVING A RADIUS OF 514.00 FEET, A RADIAL LINE TO THE BEGINNING OF SAID CURE BEARS, NORTH 65°13'52" WEST, THROUGH A CENTRAL ANGLE OF 1°40'54", NORTH 26°27'02" EAST 161.16 FEET, NORTH 01°20'53" EAST 84.86 FEET, NORTH 26°27'02" EAST 788.21 FEET AND NORTH 89°18'50" WEST 408.99 FEET TO THE POINT OF BEGINNING.

Fox Point Farms
1150 Quail Gardens Drive
Encinitas, CA 92024

Inquiry Number: 5844479.8
October 25, 2019

EDR Building Permit Report

Target Property and Adjoining Properties

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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SECTION

About This Report

Executive Summary

Findings

Glossary

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EDR BUILDING PERMIT REPORT

About This Report

The EDR Building Permit Report provides a practical and efficient method to search building department records for indications of environmental conditions. Generated via a search of municipal building permit records gathered from more than 1,600 cities nationwide, this report will assist you in meeting the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

Building permit data can be used to identify current and/or former operations and structures/features of environmental concern. The data can provide information on a target property and adjoining properties such as the presence of underground storage tanks, pump islands, sumps, drywells, etc., as well as information regarding water, sewer, natural gas, electrical connection dates, and current/former septic tanks.

ASTM and EPA Requirements

ASTM E 1527-13 lists building department records as a "standard historical source," as detailed in § 8.3.4.7: "Building Department Records - The term building department records means those records of the local government in which the property is located indicating permission of the local government to construct, alter, or demolish improvements on the property." ASTM also states that "Uses in the area surrounding the property shall be identified in the report, but this task is required only to the extent that this information is revealed in the course of researching the property itself."

EPA's Standards and Practices for All Appropriate Inquires (AAI) states: "§312.24: Reviews of historical sources of information. (a) Historical documents and records must be reviewed for the purposes of achieving the objectives and performance factors of §312.20(e) and (f). Historical documents and records may include, but are not limited to, aerial photographs, fire insurance maps, building department records, chain of title documents, and land use records."

Methodology

EDR has developed the EDR Building Permit Report through our partnership with BuildFax, the nation's largest repository of building department records. BuildFax collects, updates, and manages building department records from local municipal governments. The database now includes 30 million permits, on more than 10 million properties across 1,600 cities in the United States.

The EDR Building Permit Report comprises local municipal building permit records, gathered directly from local jurisdictions, including both target property and adjoining properties. Years of coverage vary by municipality. Data reported includes (where available): date of permit, permit type, permit number, status, valuation, contractor company, contractor name, and description.

Incoming permit data is checked at seven stages in a regimented quality control process, from initial data source interview, to data preparation, through final auditing. To ensure the building department is accurate, each of the seven quality control stages contains, on average, 15 additional quality checks, resulting in a process of approximately 105 quality control "touch points."

For more information about the EDR Building Permit Report, please contact your EDR Account Executive at (800) 352-0050.

EDR® Environmental Data Resources Inc

BUILD FAX PROPERTY HISTORY

EXECUTIVE SUMMARY: SEARCH DOCUMENTATION

A search of building department records was conducted by Environmental Data Resources, Inc (EDR) on behalf of Geotek on Oct 25, 2019.

TARGET PROPERTY

1150 Quail Gardens Drive
Encinitas, CA 92024

SEARCH METHODS

EDR searches available lists for both the Target Property and Surrounding Properties.

RESEARCH SUMMARY

Building permits identified: **YES**

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Encinitas

Year	*Source*	*TP*	*Adjoining*
2018	City of Encinitas, Planning and Building		
2017	City of Encinitas, Planning and Building		X
	City of Encinitas, Planning and Building	X	
2016	City of Encinitas, Planning and Building		
2015	City of Encinitas, Planning and Building		
2014	City of Encinitas, Planning and Building		
2013	City of Encinitas, Planning and Building		
2012	City of Encinitas, Planning and Building		
2011	City of Encinitas, Planning and Building		
2010	City of Encinitas, Planning and Building		
2009	City of Encinitas, Planning and Building		
2008	City of Encinitas, Planning and Building		
2007	City of Encinitas, Planning and Building		
2006	City of Encinitas, Planning and Building		
2005	City of Encinitas, Planning and Building		
2004	City of Encinitas, Planning and Building		
2003	City of Encinitas, Planning and Building		
2002	City of Encinitas, Planning and Building		X
2001	City of Encinitas, Planning and Building	X	
2000	City of Encinitas, Planning and Building	X	
1999	City of Encinitas, Planning and Building		
1998	City of Encinitas, Planning and Building	X	
1997	City of Encinitas, Planning and Building		
1996	City of Encinitas, Planning and Building		
1995	City of Encinitas, Planning and Building		
1994	City of Encinitas, Planning and Building		
1993	City of Encinitas, Planning and Building		
1992	City of Encinitas, Planning and Building		

EXECUTIVE SUMMARY: SEARCH DOCUMENTATION

Year	Source	TP	Adjoining
1991	City of Encinitas, Planning and Building		
1990	City of Encinitas, Planning and Building		
1989	City of Encinitas, Planning and Building		
1988	City of Encinitas, Planning and Building		
1987	City of Encinitas, Planning and Building		
1986	City of Encinitas, Planning and Building		
1985	City of Encinitas, Planning and Building		
1984	City of Encinitas, Planning and Building		
1983	City of Encinitas, Planning and Building		
1982	City of Encinitas, Planning and Building		
1981	City of Encinitas, Planning and Building		
1980	City of Encinitas, Planning and Building		
1979	City of Encinitas, Planning and Building		
1978	City of Encinitas, Planning and Building		
1977	City of Encinitas, Planning and Building		
1976	City of Encinitas, Planning and Building		
1975	City of Encinitas, Planning and Building		
1974	City of Encinitas, Planning and Building		
1973	City of Encinitas, Planning and Building		
1972	City of Encinitas, Planning and Building		
1971	City of Encinitas, Planning and Building		

Name: JurisdictionName
Years: Years
Source: Source
Phone: Phone

BUILDING DEPARTMENT RECORDS SEARCHED

Name: Encinitas
Years: 1971-2018
Source: City of Encinitas, Planning and Building, Encinitas, CA
Phone: (760) 633-2730

Name: San Diego County
Years: 1971-2019
Source: San Diego County, Development Services, SAN DIEGO, CA
Phone: (619) 446-5000

TARGET PROPERTY FINDINGS

TARGET PROPERTY DETAIL

1150 Quail Gardens Drive
Encinitas, CA 92024

1150 QUAIL GARDENS DRIVE

Date:	**8/2/2017**
Permit Type:	**EBP**
Description:	**CELLULAR-DEMOLITION/REMOVE**
Permit Description:	**ENC BUILDING PERMIT**
Work Class:	
Proposed Use:	
Permit Number:	17-00001197
Status:	
Valuation:	$50,000.00
Contractor Company:	
Contractor Name:	SOLEX CONTRACTING INC

Date:	**10/25/2001**
Permit Type:	**EPPD**
Description:	**PLUMBING-GAS (INSTALL/REPAIR)**
Permit Description:	**PLUMBING PERMIT-DWELLING**
Work Class:	
Proposed Use:	
Permit Number:	01-00002040
Status:	
Valuation:	$0.00
Contractor Company:	
Contractor Name:	TURNER ELECTRIC

TARGET PROPERTY FINDINGS

Date: **10/15/2001**
Permit Type: **EEP**
Description: **ELECTRIC-BACKUP GENERATOR**

Permit Description: **ELECTRIC PERMIT-NON RESID**
Work Class:
Proposed Use:
Permit Number: 01-00001947
Status:
Valuation: $0.00
Contractor Company:
Contractor Name: TURNER ELECTRIC

Date: **10/26/2000**
Permit Type: **EEP**
Description: **ELECTRIC-CONSTRUCTION/TEMPORARY POWER**

Permit Description: **ELECTRIC PERMIT-NON RESID**
Work Class:
Proposed Use:
Permit Number: 00-00001811
Status:
Valuation: $0.00
Contractor Company:
Contractor Name: POWER PLUS! TEMPORARY UTILITY

Date: **11/13/1998**
Permit Type: **EMP**
Description: **MECH-HEATING/AIR COND.- NEW, REPLACE, REPAIR**

Permit Description: **MECHANICAL PERMIT-NON RESI**
Work Class:
Proposed Use:
Permit Number: 98-00002025
Status:
Valuation: $0.00
Contractor Company:
Contractor Name:

ADJOINING PROPERTY FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

LEUCADIA BL MP

1230 LEUCADIA BL MP

Date:	**8/4/2017**
Permit Type:	**EEP**
Description:	**ELECTRIC-CABLE/DSL POWER SUPPLY IN R.O.W.**
Permit Description:	**ENC ELECTRIC PERMIT-NON RESID**
Work Class:	
Proposed Use:	
Permit Number:	17-00001424
Status:	
Valuation:	$0.00
Contractor Company:	
Contractor Name:	ZED ELECTRIC

Date:	**6/24/2002**
Permit Type:	**EEP**
Description:	**ELECTRIC-SERVICE INCREASE/RELOCATION/NEW**
Permit Description:	**ELECTRIC PERMIT-NON RESID**
Work Class:	
Proposed Use:	
Permit Number:	02-00001251
Status:	
Valuation:	$0.00
Contractor Company:	
Contractor Name:	TERRA FIRMA LANDSCAPE

GLOSSARY

General Building Department concepts

- **ICC:** The International Code Council. The governing body for the building/development codes used by all jurisdictions who've adopted the ICC guidelines. MOST of the US has done this. Canada, Mexico, and other countries use ICC codes books and guides as well. There are a few states who have added guidelines to the ICC codes to better fit their needs. For example, California has added seismic retrofit requirements for most commercial structures.
- **Building Department (Permitting Authority, Building Codes, Inspections Department, Building and Inspections):** This is the department in a jurisdiction where an owner or contractor goes to obtain permits and inspections for building, tearing down, remodeling, adding to, re-roofing, moving or otherwise making changes to any structure, Residential or Commercial.
- **Jurisdiction:** This is the geographic area representing the properties over which a Permitting Authority has responsibility.
- **GC:** General Contractor. Usually the primary contractor hired for any Residential or Commercial construction work.
- **Sub:** Subordinate contracting companies or subcontractors. Usually a "trades" contractor working for the GC. These contractors generally have an area of expertise in which they are licensed like Plumbing, Electrical, Heating and Air systems, Gas Systems, Pools etc. (called "trades").
- **Journeymen:** Sub contractors who have their own personal licenses in one or more trades and work for different contracting companies, wherever they are needed or there is work.
- **HVAC (Mechanical, Heating & Air companies):** HVAC = Heating, Ventilation, and Air Conditioning.
- **ELEC (Electrical, TempPole, TPole, TPower, Temporary Power, Panel, AMP Change, Power Release):** Electrical permits can be pulled for many reasons. The most common reason is to increase the AMPs of power in an electrical power panel. This requires a permit in almost every jurisdiction. Other commons reason for Electrical permits is to insert a temporary power pole at a new construction site. Construction requires electricity, and in a new development, power has yet to be run to the lot. The temporary power pole is usually the very first permit pulled for new development. The power is released to the home owner when construction is complete and this sometimes takes the form of a Power Release permit or inspection.
- **"Pull" a permit:** To obtain and pay for a building permit.
- **CBO:** Chief Building Official
- **Planning Department:** The department in the development process where the building /structural plans are reviewed for their completeness and compliance with building codes
- **Zoning Department:** The department in the development process where the site plans are reviewed for their compliance with the regulations associated with the zoning district in which they are situated.
- **Zoning District:** A pre-determined geographic boundary within a jurisdiction where certain types of structures are permitted / prohibited. Examples are Residential structure, Commercial/Retail structures, Industrial/Manufacturing structures etc. Each zoning district has regulations associated with it like the sizes of the lots, the density of the structures on the lots, the number of parking spaces required for certain types of structures on the lots etc.
- **PIN (TMS, GIS ID, Parcel#):** Property Identification Number and Tax Map System number.
- **State Card (Business license):** A license card issued to a contractor to conduct business.
- **Building Inspector (Inspector):** The inspector is a building department employee that inspects building construction for compliance to codes.
- **C.O.:** Certificate of Occupancy. This is the end of the construction process and designates that the owners now have permission to occupy a structure after its building is complete. Sometimes also referred to as a Certificate of Compliance.

GLOSSARY

Permit Content Definitions

- Permit Number: The alphanumerical designation assigned to a permit for tracking within the building department system. Sometimes the permit number gives clues to its role, e.g. a "PL" prefix may designate a plumbing permit.
- Description: A field on the permit form that allows the building department to give a brief description of the work being done. More often than not, this is the most important field for EP's to find clues to the prior use(s) of the property.
- Permit Type: Generally a brief designation of the type of job being done. For example BLDG-RES, BLDG-COM, ELEC, MECH etc.

Sample Building Permit Data

Date: Nov 09, 2000
Permit Type: Bldg -
New Permit Number: 101000000405
Status: Valuation: $1,000,000.00
Contractor Company: OWNER-BUILDER
Contractor Name:

Description: New one store retail (SAV-ON) with drive-thru pharmacy. Certificate of Occupancy.

APPENDIX E

PROJECT TEAM QUALIFICATIONS

J. MICHAEL BATTEN, CAC, CEM, REPA

Principal/Environmental Services Manager

Education

BS in Geology, California State University, Fresno 1988

Registrations

- Certified Asbestos Consultant (CA #95-1721)
- Licensed Asbestos Abatement Consultant (NV #IJPM0655)
- Certified Environmental Manager (NV #1782)
- Asbestos Professional Inspector (IL #100-11092)
- Registered Environmental Property Assessor (#113162))
- Certified Lead Inspector Assessor (CA #4358)
- Certified Lead Inspector (EPA #LBP-I-1162326-1)
- Certified Lead Risk Assessor (EPA #LBP-R-1162326-1)

Certifications

- AHERA Certified Asbestos Building Inspector, Management Planner, Project Designer, & Contractor/Supervisor
- EPA Accredited Lead-based Paint Inspector & Risk Assessor
- OSHA HAZWOPER certified worker & supervisor
- OSHA Construction Safety & Health (10-Hour)

Affiliations

- American Society of Testing and Materials
- National Registry of Environmental Professionals

Professional Experience

Mr. Batten has over 30 years of environmental experience, throughout which he has conducted and managed numerous environmental investigations, assessments, and remediations. He has prepared several NEPA assessments, USEPA EIS, and CEQA EIR reports. In addition, Mr. Batten has extensive experience in conducting asbestos and lead-based paint surveys and preparing management plans, including remediation design, for asbestos and lead present in buildings.

Project Experience

- **Phase I Environmental Site Assessments:** Mr. Batten has conducted more than 2,000 Phase I Environmental Site Assessments in 27 states, including Brownfield studies under USEPA grants.
- **Phase II Environmental Site Assessments:** Mr. Batten has conducted more than 150 Phase II Environmental Assessments, including Brownfield studies under USEPA grants.
- **Site Characterizations and Remediations:** Mr. Batten has experience conducting numerous site characterizations and remediations, including obtaining regulatory closure.
- **NEPA Studies:** Mr. Batten has conducted more than 200 NEPA studies, including Environmental Assessments, Environmental Impact Reports/Environmental Impact Studies, in eight states. The agencies involved include USEPA, FCC, BLM, National Park Service, and California EPA.
- **Asbestos Services:** Mr. Batten has conducted over 600 asbestos surveys in several states. He has also prepared numerous Asbestos Management Plans, prepared design plans, and monitored numerous abatement projects.
- **Lead-Based Paint Services:** Mr. Batten has conducted numerous Lead-Based Paint surveys.
- **Landfills**: Mr. Batten has conducted investigations and overseen remediations on landfills in Fresno, California and Henderson, Nevada.
- **Other Services:** Mr. Batten has been called upon to conduct less usual services on occasion, including mold consultation and investigation, radon studies, vapor intrusion studies, and indoor air quality studies.

J. MICHAEL BATTEN, continued…

Professional History

Environmental Services Manager. GeoTek, Inc., 2001 to present.

Director of Environmental Services. ATC Associates, Inc., 1999 to 2001.

Director of Operations. Hygienetics Environmental Services, Inc., 1997 to 1999.

Project Manager. AllWest Environmental, Inc., 1996 to 1997.

Project Manager. Citadel Environmental Services, Inc., 2/1996 to 9/1996.

Project Manager. Boelter Environmental consultants, 3/1995 to 9/1995.

Senior Staff Geologist. Converse Consultants, 1992 to 1995.

Staff Geologist. Converse Environmental West, 1991 to 1992.

Project Geologist. Krazan and Associates, 1990 to 1991.

Environmental Technician. Krazan and Associates, 1989 to 1990.

Christopher D. Livesey, PG

Project Geologist

Areas of Expertise

Geotechnical Field Investigations, Fault Hazard Studies, Downtown San Diego Infill Development, Grading and Earthwork Construction, Design Build Construction, Industry Standard of Care, Hillside, Liquefaction, Seismic Hazard, Landslide Repair. Phase I & II tasks

Education

Bachelor of Science in Geology, Cal State University, Long Beach

Registrations

Registered Geologist, GEO 9584

Certifications

OSHA 40-Hr HAZWOPER Training
OSHA 8-Hour Refresher
ACI-Field Tech Grade I
First Aid/CPR

Professional Affiliations

San Diego Association of Geologist
-President circa 2018

San Diego Geological Society
-Retired Board Member

Professional Experience

Mr. Livesey has been involved with numerous residential, commercial, and public works, projects within the southern California area. From single lot custom homes to master-planned communities to urban high-rise infill development. Many private and public works projects have been successfully completed across southern and central California. Mr. Livesey has gained experience from proposing services, to the laboratory, to site geotechnical and fault hazard evaluations, to construction observation and testing, to project management, which provides a long case history throughout development of a project. Projects include fault evaluations, various commercial and residential site developments, These projects have generally included preliminary geotechnical investigations, slope stability evaluations, review and design recommendations, street improvements construction and testing services, design build construction projects, landslide repair and project management.

Representative Project Experience

Project experience has included residential and commercial developments, for various land developers including City Ventures, Streetlights Residential, DR Horton, Chelsea Investments, Holland Partners Group, Level 3 Construction, Kettler Leweck Engineering, Integral Communities, HNTB, etc. Mr. Livesey has also completed geotechnical investigations and performed project management for numerous residential tracts and commercial facilities all across Southern California.

Professional History

Project Geologist - GeoTek, Inc., Vista, 2018 to present

Project Geologist - Leighton Consulting, Inc., San Diego, 2013 to 2018

Geologist - Leighton Consulting, Inc., Irvine, 2004 to 2013

Engineering Technician - GeoSoils, Inc., Santa Ana, 2002 to 2004

Anna M. Scott

Project Geologist

Education

B.S., Geology, University of California, Riverside

Certifications

ICC Special Soils Inspector No. 8160149 (issued 05/23/12 and expires 05/23/18)

Professional Experience

Ms. Anna Scott has over 27 years of geotechnical experience and has worked on or managed a wide range of geotechnical projects throughout southern California, including the High Desert, Inland Empire, Antelope Valley, Coachella Valley, Orange County and Bakersfield area. Her geotechnical experience has ranged from field and laboratory technician to field, staff and project geologist. Ms. Scott's responsibilities include preparation of proposals, preliminary geotechnical investigations, seismic studies, settlement monitor installation and studies, and field studies as a technician and geologist for large grading projects. Ms. Scott has performed Phase I and II ESAs for various property acquisitions and transfers throughout southern California.

Representative Project Experience

Ms. Scott has worked on numerous projects throughout southern California. Her experience includes working with various entities including the public and private sectors. Her vast knowledge includes geotechnical, environmental and materials services. This experience has been attained through small and large projects over the numerous years of her career.

Employment History

GeoTek, Inc., Riverside-Project Geologist, February 2005 – Present

GeoSoils, Inc., Santa Ana, September 1987 – February 2005

APPENDIX K-1 LIMITED ADDITIONAL SOIL SAMPLING

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LIMITED
ADDITIONAL SOIL SAMPLING

FOX POINT FARMS PROJECT
1150 QUAIL GARDENS DRIVE
ENCINITAS, SAN DIEGO COUNTY, CALIFORNIA 92082

January 28, 2020

Project No.3611-SD

Prepared For:

Nolen Communities, LLC
1680 N. Coast Highway 101, Suite No. 51
Encinitas, California 92024

GEOTEK

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LIST OF APPENDICES

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APPENDIX B: LABORATORY REPORTS
APPENDIX C: PROJECT TEAM QUALIFICATIONS

1.0 EXECUTIVE SUMMARY

GEOTEK, INC. (GEOTEK) has performed a Limited Additional Soil Sampling at the Fox Point Farms project (the "Site"), located at 1150 Quail Gardens Drive, Encinitas, San Diego County, California. Our services were conducted in substantial conformance with ASTM Standard E 1903-11, and currently recognized industry standards. Any additions or deletions from our scope of services are discussed in the appropriate sections of this assessment.

GEOTEK conducted limited soil sampling at the Site on November 27, 2019. Fifteen (15) locations ranging at depths between the surface and two (2) feet below surface were selected across the Site. Soil samples were obtained utilizing a hand auger and submitted to a state certified laboratory for analysis.

The samples were analyzed for total petroleum hydrocarbons (TPH), organo-chlorinated pesticides (OCPs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and selectively for polychlorinated biphenyls (PCBs).

This Limited Additional Soil Sampling has revealed evidence of subsurface contamination with heavy oils resulting from the leaking trash compactor at the Site. Based on results from GB-1 (surface sample), TPH in the diesel range (diesel range organics [DROs]) and mid-range organics (MROs) were found to be 24,000milligrams per kilogram (mg/Kg) and 44,000 mg/Kg, respectively. However, the sample taken at a depth of two (2) feet (GB-2) and five (5) feet to the north (directly downgradient) at the surface and two (2) feet below (GB-1+5-0 and GB-1+5-2) showed DROs and MROs below 100 mg/Kg. Samples GB-2 and GB-3 also show TPH above the reporting limit. Therefore, the impacted soil related to heavy oils observed is estimated to be six (6) to eight (8) cubic yards of soil. The impacted soil should be excavated and properly disposed of offsite. Confirmation samples should be performed along the excavation sides and bottom to confirm that the impacted soil has been mitigated.

During our investigation, two nursey buildings randomly selected for sampling were not sampled due to an active application of the pesticide spray being applied. The buildings not sampled are identified on Figure 2. Although sampling was not performed within these two buildings, sample results from other buildings indicate the conditions are consistent throughout the nursey buildings. In addition, a portion of the site is to be dedicated as agricultural use and a portion of the site, although may appear to be a greenhouse, is utilized as a flower grouping and distribution facility (see Figure 2).

This executive summary does not contain all the information that is found in the full report. The report should be read in its entirety to obtain a more complete understanding of the

information provided and to aid in any decisions made or actions taken based on this information.

2.0 INTRODUCTION

GEOTEK, INC. (GEOTEK) has performed a Limited Additional Soil Sampling at the Fox Point Farms Project (the "Site"), located at 1150 Quail Gardens Drive, Encinitas, San Diego County, California (refer to Figure 1 in Appendix A).

2.1 PURPOSE

The purpose of this Limited Additional Soil Sampling was to identify and evaluate suspected and actual environmental conditions involving the subject Site. It was not the purpose of this assessment to determine the degree or extent of contamination, if any, but rather the existence of contamination.

2.2 SCOPE OF WORK

GEOTEK conducted the investigation in substantial accordance with ASTM Standard E 1903-11 and currently recognized industry standards. Generally, the GEOTEK Scope of Services consisted of the following:

1. Coordination of the laboratories to complete the proposed Scope of Services.

2. Advancement of 15 borings at the Site from near surface soil utilizing a hand auger device to collect samples. One (1) soil sample at the surface and one sample at a depth of 1 or 2 feet from each boring was submitted to the laboratory for analysis.

3. Analysis of soil samples by a state certified laboratory for the following chemical analysis:

   Total Petroleum Hydrocarbons (TPH), organo-chlorinated pesticides (OCPs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and selectively for polychlorinated biphenyls (PCBs).

4. Preparation of this report presenting our findings, including applicable data, drawings, and photographs.

2.3 SIGNIFICANT ASSUMPTIONS

Specific assumptions by GEOTEK for this assessment include:

- GEOTEK had permission to access the Site grounds;
- The client has provided GEOTEK with available geotechnical or environmental reports for the Site;
- The client has provided GEOTEK with known current or historic uses of hazardous materials at the Site, or with other specialized knowledge of the environmental history of the Site and surrounding area.

2.4 LIMITATIONS AND EXCEPTIONS

GEOTEK conducted a Limited Additional Soil Sampling in substantial accordance with ASTM E 1903-11, and as authorized by Nolen Communities, LLC. This report is intended for the use of Nolen Communities, LLC and its immediate assignees. The contents should not be relied upon by any party other than the aforementioned without the express written consent of GEOTEK.

The findings, conclusions, and recommendations made in this report are based on the information that was made available to GEOTEK, in most instances from public records. The opinions and conclusions expressed herein are based on information obtained during our assessment and on our experience and current standards of technical practice. GEOTEK makes no other warranties, either express or implied, concerning the completeness of the data furnished to us. GEOTEK cannot be responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time our assessment was undertaken. GEOTEK is not responsible, nor liable for work, testing or recommendations performed or provided by others. This document is not and should not be construed as a warranty or guarantee about the presence or absence of environmental hazards or contaminants, which may affect the subject site. Facts, conditions, and acceptable risk factors change with time; accordingly, this report should be viewed within this context.

Specific limitations to the scope of ASTM E 1903-11 due to contract limitations, availability of resources, and/or encountered Site conditions are discussed in the appropriate section(s) of this report.

2.5 SPECIAL TERMS AND CONDITIONS

This assessment report is presented as fulfilling the standard requirements of most financial institutions, governmental regulatory agencies, ASTM, and generally accepted industry standards and practices.

2.6 RELIANCE

This assessment has been prepared for the exclusive use, and may be relied upon by, Nolen Communities, LLC, their successors, and assignees. Third party reliance letters may be issued upon request and upon the payment of the, then current, fee for such letters. All third parties relying on this report, by such reliance, agree to be bound by the General Conditions and Limitations agreed to by Nolen Communities, LLC. No reliance by any party is permitted without such agreement, regardless of the content of the reliance letter itself.

3.0 BACKGROUND

During June 2018, GEOTEK conducted a Phase I investigation of the Site (GEOTEK, 2018). Findings from that work and subsequent interviews indicate the Site has been an active botanical nursery since approximately 1970.

The Phase I Environmental Site Assessment revealed evidence of a recognized environmental condition and an environmental concern in connection with the subject Site.

A trash compactor on a concrete pad located in the northern portion of the Site was leaking hydraulic fluid during the site visit, as evident by staining on the equipment and surrounding soil. Sampling and testing of this area for impacted soil surrounding the pad was recommended.

The Site is an active botanical nursery. Environmental impacts related to herbicides, pesticides, and fertilizer are considered to be a likely contaminant impacting the Site. Housekeeping practices were found to be less than optimal, further indicating potential for miss-handling of these materials. A combination of random and focused field sampling and laboratory testing program was recommended to identify or dismiss concerns related to past and current agricultural and botanical production at the Site.

4.0 SUMMARY OF ACTIVITIES

GeoTek conducted limited soil sampling at the Site on November 27, 2019.

Our field sampling plan included utilizing a hand auger to obtain surface samples and at depths ranging between one and two feet below surface. Sampling locations were selected and performed within the active botanical nurseries and outside at random locations (refer to Figure 2 for sample locations).

A total of 15 borings were performed and a total of 30 soil samples were obtained from the site. Seven (7) borings and 14 soil samples were collected around the perimeter of the site and include two borings at the trash compactor. Eight (8) borings and 16 soil samples were collected within the active botanical nursery. Samples were collected utilizing a hand auger, collected in 8-ounce glass jars, and placed into a precooled cooler. The samples were pack on ice and submitted under Chain-of-Custody to a state certified laboratory for analysis.

5.0 DISCUSSION OF RESULTS

The samples were analyzed for total petroleum hydrocarbons (TPH), organo-chlorinated pesticides (OCPs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and selectively for polychlorinated biphenyls (PCBs). The laboratory report is included in Appendix B.

Analytical results revealed petroleum-based constituents were detected above their respective reporting limits in shallow soil at boring GB-1, GB-2, and GB-3. They were also detected at other sample locations below the reporting limits. The following table summarizes the total petroleum hydrocarbon results.

TOTAL PETROLEUM HYDROCARBON SUMMARY ANALYTICAL RESULTS

Sample ID	Depth (feet)	DROs (mg/Kg)	DROs (mg/Kg)	MROs (mg/Kg)
GB-1-0	0	ND (0.25)	**24,000**	**44,000**
GB-1-2	2	ND (0.25)	20	**110**
GB-1+5-0	0	ND (0.25)	12	62
GB-1+5-2	2	ND (0.25)	ND (10)	ND (50)

Sample ID	Depth (feet)	DROs (mg/Kg)	DROs (mg/Kg)	MROs (mg/Kg)
GB-2-0	0	ND (0.25)	54	**340**
GB-2-2	2	ND (0.25)	23	**140**
GB-3-0	0	ND (0.25)	49	**240**
GB-3-2	2	ND (0.25)	ND (10)	ND (50)
GB-4-0	0	ND (0.25)	15	76
GB-4-1	1	ND (0.25)	ND (10)	ND (50)
GB-5-0	0	ND (0.25)	33	77
GB-5-2	2	ND (0.25)	ND (10)	ND (50)
GB-6-0	0	ND (0.25)	15	84
GB-6-2	2	ND (0.25)	ND (10)	ND (50)
GB-7-0	0	0.32	ND (10)	ND (50)
GB-7-2	2	ND (0.25)	ND (10)	ND (50)
GB-8-0	0	ND (0.25)	ND (10)	ND (50)
GB-8-1	1	0.32	ND (10)	ND (50)
GB-9-0	0	ND (0.25)	ND (10)	ND (50)
GB-9-2	2	ND (0.25)	ND (10)	ND (50)
GB-10-0	0	ND (0.25)	ND (10)	51
GB-10-2	2	ND (0.25)	ND (10)	ND (50)
GB-11-0	0	ND (0.25)	ND (10)	ND (50)
GB-11-2	2	ND (0.25)	ND (10)	ND (50)
GB-12-0	0	ND (0.25)	12	51
GB-12-2	2	ND (0.25)	ND (10)	60
GB-13-0	0	ND (0.25)	ND (10)	ND (50)
GB-13-1	1	ND (0.25)	ND (10)	ND (50)
GB-14-0	0	ND (0.25)	36	80
GB-14-2	2	ND (0.25)	ND (10)	ND (50)

Sample ID	Depth (feet)	DROs (mg/Kg)	DROs (mg/Kg)	MROs (mg/Kg)
RSL		100	100	100

mg/kg = milligram per kilogram

RSL= EPA Regional Screening Level (RSL), TQH=0.1, for residential soil, November 2019

Analytical results for OCPs, while detecting minor concentrations of DDE, DDE, Endosulfan I, Endosulfan II, and Toxaphine, did not detect these chemicals in concentrations above the RSLs.

Analytical results did not detect volatile organic compounds or PCBs.

Analytical results did not detect metals detected above RSLs. The metals detected below RSLs are considered to be background levels.

6.0 CONCLUSIONS AND RECOMMENDATIONS

GEOTEK has performed a Limited Additional Soil Sampling for the subject Site in substantial conformance with the scope and limitations of ASTM E 1903-11.

This Limited Additional Soil Sampling has revealed evidence of petroleum hydrocarbon surface contamination resulting from the leaking trash compactor at the Site (heavy oils). The area of impacted soil related to the trash compactor is estimated to be six (6) to eight (8) cubic yards which should be excavated and removed. Two other areas, on the west portion of the Site, also require remediation, estimated to be approximately 2-3 cubic yards each. Remediation of these areas does not pose a significant and logistical clean-up effort. The impacted soil should be excavated and properly disposed of offsite. Confirmation samples should be performed along the excavation sides and bottom to confirm that the impacted soil has been mitigated.

7.0 CERTIFICATIONS

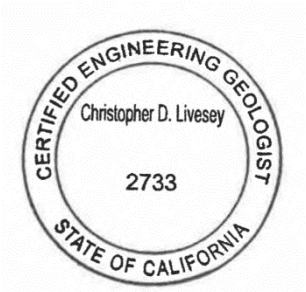
I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting

of the subject Site. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR 312.

The qualifications of the Project Team are included in Appendix C.

We appreciate this opportunity to be of service. If you have any questions, or if we can be of further service, please contact us at (760) 599-0509.

Sincerely,
GEOTEK, INC.



Christopher D. Livesey
CEG 2733, Exp. 5/31/21
Project Geologist

J. Michael Batten, REPA
Environmental Services Manager
Registered Environmental Property Assessor
No. 113162 (expires 06/15/20)

8.0 8.0 REFERENCES

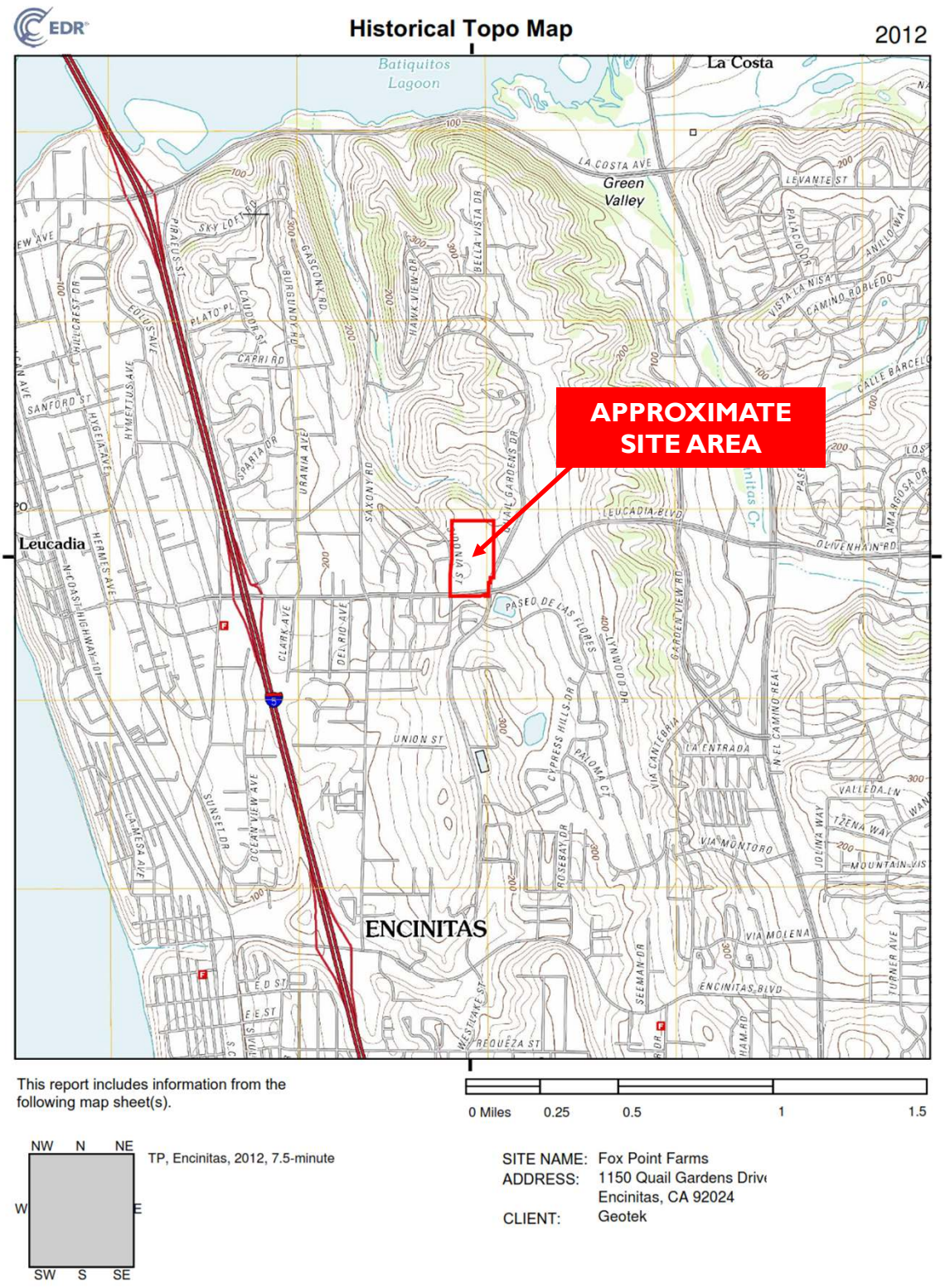
GeoTek, Inc. "Phase I Environmental Site Assessment, Fox Point Farms Project, 1150 Quail Gardens Drive, Encinitas, San Diego County, California 92082" Project No. 3611-SD dated November 18, 2019.

U.S. GOVERNMENT

- Environmental Protection Agency Regional Screening Levels (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables)

APPENDIX A

FIGURES



Nolen Communities, LLC.
Fox Point Farms Project
1150 Quail Gardens Drive,
Encinitas, California

Project No. 3611-SD

NORTH

Figure 1
Site Location and General Site Topography Map

GEOTEK



N

Not to Scale

Imagery from Google Earth, 2020

LEGEND

GB-14 Approximate Location of Hand Auger Boring, +5 indicates Five Foot offset from Original Boring

Nolen Communities, LLC. Fox Point Farms 1150 Quail Gardens Drive Encinitas, California	Figure 2 Boring Location Map	GEOTEK 1384 Poinsettia Avenue, Suite A Vista, California 92081
PN: 3611-SD | DATE: January 2020		

APPENDIX B

LABORATORY REPORTS

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LABORATORY REPORT FORM

ORANGE COAST ANALYTICAL, INC.

3002 Dow Suite 532 Tustin, CA 92780

(714) 832-0064

Laboratory Certification (ELAP) No.: 2576
Expiration Date: 2020
Los Angeles County Sanitation District Lab ID# 10206

Laboratory Director's Name:

Mark Noorani

Client:	GeoTek, Inc.
Laboratory Reference:	GTK 24756
Project Name:	Fox Point Farms
Project Number:	3611-SD
Date Received:	11/27/2019
Date Reported:	12/7/2019
Chain of Custody Received:	☑
Analytical Method:	8015B, 8081A, 8082, 8260B, 8015M, 6010B, 7471A,

Mark Noorani, Laboratory Director

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Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Case Narrative

Sample Receipt:

All samples on the Chain of Custody were received by OCA at 4.2ºC, on ice.

Holding Times:

All samples were analyzed within required holding times unless otherwise noted in the data qualifier section of the report.

Analytical Methods:

Sample analysis was performed following the analytical methods listed on the cover page.

Data Qualifiers:

Within this report, data qualifiers may have been assigned to clarify deviations in common laboratory procedures or any divergence from laboratory QA/QC criteria. If a data qualifier has been used, it will appear in the back of the report along with its description. All method QA/QC criteria have been met unless otherwise noted in the data qualifier section.

Definition of Terms:

The definitions of common terms and acronyms used in the report have been placed at the back of the report to assist data users.

Comments:

None

Mr. Chris Livesey
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Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Client Sample Summary

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-1-0	24756-001	11/27/2019	11/27/2019	Soil
GB-1-2	24756-002	11/27/2019	11/27/2019	Soil
GB-1+5-0	24756-003	11/27/2019	11/27/2019	Soil
GB-1+5-2	24756-004	11/27/2019	11/27/2019	Soil
GB-2-0	24756-005	11/27/2019	11/27/2019	Soil
GB-2-2	24756-006	11/27/2019	11/27/2019	Soil
GB-3-0	24756-007	11/27/2019	11/27/2019	Soil
GB-3-2	24756-008	11/27/2019	11/27/2019	Soil
GB-4-0	24756-009	11/27/2019	11/27/2019	Soil
GB-4-1	24756-010	11/27/2019	11/27/2019	Soil
GB-5-0	24756-011	11/27/2019	11/27/2019	Soil
GB-5-2	24756-012	11/27/2019	11/27/2019	Soil
GB-6-0	24756-013	11/27/2019	11/27/2019	Soil
GB-6-2	24756-014	11/27/2019	11/27/2019	Soil
GB-7-0	24756-015	11/27/2019	11/27/2019	Soil
GB-7-2	24756-016	11/27/2019	11/27/2019	Soil
GB-8-0	24756-017	11/27/2019	11/27/2019	Soil
GB-8-1	24756-018	11/27/2019	11/27/2019	Soil
GB-9-0	24756-019	11/27/2019	11/27/2019	Soil
GB-9-2	24756-020	11/27/2019	11/27/2019	Soil
GB-10-0	24756-021	11/27/2019	11/27/2019	Soil
GB-10-2	24756-022	11/27/2019	11/27/2019	Soil
GB-11-0	24756-023	11/27/2019	11/27/2019	Soil
GB-11-2	24756-024	11/27/2019	11/27/2019	Soil
GB-12-0	24756-025	11/27/2019	11/27/2019	Soil
GB-12-2	24756-026	11/27/2019	11/27/2019	Soil
GB-13-0	24756-027	11/27/2019	11/27/2019	Soil
GB-13-1	24756-028	11/27/2019	11/27/2019	Soil
GB-14-0	24756-029	11/27/2019	11/27/2019	Soil
GB-14-2	24756-030	11/27/2019	11/27/2019	Soil

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Diesel Range Organics - DROs (EPA 8015B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1-0	24756-001	11/27/2019 16:50	11/27/2019 8:35	12/3/2019 10:53	12/3/2019 18:27	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	24000	Octacosane	Diluted
		* Acc Recovery:	45-170 %

Dilution Factor: 50
Data Qualifiers: D2, S8,

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1-0	24756-001	11/27/2019 16:50	11/27/2019 8:35	12/3/2019 10:53	12/3/2019 18:27	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	44000	Octacosane	Diluted
		* Acc Recovery:	45-170 %

Dilution Factor: 50
Data Qualifiers: D2, S8,

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1-2	24756-002	11/27/2019 16:50	11/27/2019 8:40	12/3/2019 10:53	12/3/2019 15:37	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	20	Octacosane	87
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1-2	24756-002	11/27/2019 16:50	11/27/2019 8:40	12/3/2019 10:53	12/3/2019 15:37	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	110	Octacosane	87
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1+5-0	24756-003	11/27/2019 16:50	11/27/2019 8:45	12/3/2019 10:53	12/3/2019 16:11	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	12	Octacosane	82
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Extractable Fuel Hydrocarbons (EPA 8015B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1+5-0	24756-003	11/27/2019 16:50	11/27/2019 8:45	12/3/2019 10:53	12/3/2019 16:11	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	62	Octacosane	82
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1+5-2	24756-004	11/27/2019 16:50	11/27/2019 8:50	12/3/2019 10:53	12/3/2019 16:44	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	79
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1+5-2	24756-004	11/27/2019 16:50	11/27/2019 8:50	12/3/2019 10:53	12/3/2019 16:44	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	79
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-2-0	24756-005	11/27/2019 16:50	11/27/2019 8:55	12/3/2019 10:53	12/3/2019 17:18	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	54	Octacosane	92
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-2-0	24756-005	11/27/2019 16:50	11/27/2019 8:55	12/3/2019 10:53	12/3/2019 17:18	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	340	Octacosane	92
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Diesel Range Organics - DROs (EPA 8015B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-2-2	24756-006	11/27/2019 16:50	11/27/2019 9:00	12/3/2019 10:53	12/3/2019 17:53	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	23	Octacosane	82
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-2-2	24756-006	11/27/2019 16:50	11/27/2019 9:00	12/3/2019 10:53	12/3/2019 17:53	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	140	Octacosane	82
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-3-0	24756-007	11/27/2019 16:50	11/27/2019 9:05	12/3/2019 10:53	12/3/2019 20:28	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	49	Octacosane	88
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-3-0	24756-007	11/27/2019 16:50	11/27/2019 9:05	12/3/2019 10:53	12/3/2019 20:28	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	240	Octacosane	88
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-3-2	24756-008	11/27/2019 16:50	11/27/2019 9:10	12/3/2019 10:53	12/3/2019 21:03	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	80
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Extractable Fuel Hydrocarbons (EPA 8015B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-3-2	24756-008	11/27/2019 16:50	11/27/2019 9:10	12/3/2019 10:53	12/3/2019 21:03	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	80
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-4-0	24756-009	11/27/2019 16:50	11/27/2019 9:15	12/3/2019 10:53	12/3/2019 21:36	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	15	Octacosane	80
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-4-0	24756-009	11/27/2019 16:50	11/27/2019 9:15	12/3/2019 10:53	12/3/2019 21:36	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	76	Octacosane	80
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-4-1	24756-010	11/27/2019 16:50	11/27/2019 9:20	12/3/2019 10:53	12/3/2019 22:11	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	89
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-4-1	24756-010	11/27/2019 16:50	11/27/2019 9:20	12/3/2019 10:53	12/3/2019 22:11	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	89
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Diesel Range Organics - DROs (EPA 8015B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-5-0	24756-011	11/27/2019 16:50	11/27/2019 9:25	12/3/2019 10:53	12/3/2019 22:44	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	33	Octacosane	83
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-5-0	24756-011	11/27/2019 16:50	11/27/2019 9:25	12/3/2019 10:53	12/3/2019 22:44	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	77	Octacosane	83
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-5-2	24756-012	11/27/2019 16:50	11/27/2019 9:30	12/3/2019 10:53	12/3/2019 23:19	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	76
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-5-2	24756-012	11/27/2019 16:50	11/27/2019 9:30	12/3/2019 10:53	12/3/2019 23:19	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	76
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-6-0	24756-013	11/27/2019 16:50	11/27/2019 9:35	12/3/2019 10:53	12/3/2019 23:52	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	15	Octacosane	82
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Extractable Fuel Hydrocarbons (EPA 8015B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-6-0	24756-013	11/27/2019 16:50	11/27/2019 9:35	12/3/2019 10:53	12/3/2019 23:52	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	84	Octacosane	82
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-6-2	24756-014	11/27/2019 16:50	11/27/2019 9:40	12/3/2019 10:53	12/4/2019 0:27	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	82
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-6-2	24756-014	11/27/2019 16:50	11/27/2019 9:40	12/3/2019 10:53	12/4/2019 0:27	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	82
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-7-0	24756-015	11/27/2019 16:50	11/27/2019 9:45	12/3/2019 10:53	12/4/2019 1:00	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	82
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-7-0	24756-015	11/27/2019 16:50	11/27/2019 9:45	12/3/2019 10:53	12/4/2019 1:00	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	82
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Diesel Range Organics - DROs (EPA 8015B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-7-2	24756-016	11/27/2019 16:50	11/27/2019 9:50	12/3/2019 10:53	12/4/2019 1:35	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	106
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-7-2	24756-016	11/27/2019 16:50	11/27/2019 9:50	12/3/2019 10:53	12/4/2019 1:35	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	106
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-8-0	24756-017	11/27/2019 16:50	11/27/2019 9:55	12/3/2019 10:53	12/4/2019 2:08	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	87
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-8-0	24756-017	11/27/2019 16:50	11/27/2019 9:55	12/3/2019 10:53	12/4/2019 2:08	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	87
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-8-1	24756-018	11/27/2019 16:50	11/27/2019 10:00	12/3/2019 10:53	12/4/2019 2:43	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	107
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Extractable Fuel Hydrocarbons (EPA 8015B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-8-1	24756-018	11/27/2019 16:50	11/27/2019 10:00	12/3/2019 10:53	12/4/2019 2:43	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	107
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-9-0	24756-019	11/27/2019 16:50	11/27/2019 11:00	12/3/2019 14:22	12/4/2019 6:41	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	79
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-9-0	24756-019	11/27/2019 16:50	11/27/2019 11:00	12/3/2019 14:22	12/4/2019 6:41	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	79
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-9-2	24756-020	11/27/2019 16:50	11/27/2019 11:05	12/3/2019 14:22	12/4/2019 7:15	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	84
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-9-2	24756-020	11/27/2019 16:50	11/27/2019 11:05	12/3/2019 14:22	12/4/2019 7:15	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	84
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

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Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Diesel Range Organics - DROs (EPA 8015B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-10-0	24756-021	11/27/2019 16:50	11/27/2019 11:10	12/3/2019 14:22	12/4/2019 7:50	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	81
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-10-0	24756-021	11/27/2019 16:50	11/27/2019 11:10	12/3/2019 14:22	12/4/2019 7:50	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	51	Octacosane	81
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-10-2	24756-022	11/27/2019 16:50	11/27/2019 11:20	12/3/2019 14:22	12/4/2019 8:23	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	78
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-10-2	24756-022	11/27/2019 16:50	11/27/2019 11:20	12/3/2019 14:22	12/4/2019 8:23	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	78
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-11-0	24756-023	11/27/2019 16:50	11/27/2019 11:30	12/3/2019 14:22	12/4/2019 8:57	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	101
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Extractable Fuel Hydrocarbons (EPA 8015B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-11-0	24756-023	11/27/2019 16:50	11/27/2019 11:30	12/3/2019 14:22	12/4/2019 8:57	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	101
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-11-2	24756-024	11/27/2019 16:50	11/27/2019 11:40	12/3/2019 14:22	12/4/2019 9:31	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	79
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-11-2	24756-024	11/27/2019 16:50	11/27/2019 11:40	12/3/2019 14:22	12/4/2019 9:31	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	79
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-12-0	24756-025	11/27/2019 16:50	11/27/2019 12:00	12/3/2019 14:22	12/4/2019 10:04	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	12	Octacosane	79
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-12-0	24756-025	11/27/2019 16:50	11/27/2019 12:00	12/3/2019 14:22	12/4/2019 10:04	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	51	Octacosane	79
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Diesel Range Organics - DROs (EPA 8015B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-12-2	24756-026	11/27/2019 16:50	11/27/2019 12:10	12/3/2019 14:22	12/4/2019 10:38	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	75
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-12-2	24756-026	11/27/2019 16:50	11/27/2019 12:10	12/3/2019 14:22	12/4/2019 10:38	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	60	Octacosane	75
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-13-0	24756-027	11/27/2019 16:50	11/27/2019 12:30	12/3/2019 14:22	12/4/2019 11:11	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	104
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-13-0	24756-027	11/27/2019 16:50	11/27/2019 12:30	12/3/2019 14:22	12/4/2019 11:11	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	104
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-13-1	24756-028	11/27/2019 16:50	11/27/2019 12:40	12/3/2019 14:22	12/4/2019 11:45	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	108
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Extractable Fuel Hydrocarbons (EPA 8015B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-13-1	24756-028	11/27/2019 16:50	11/27/2019 12:40	12/3/2019 14:22	12/4/2019 11:45	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	108
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-14-0	24756-029	11/27/2019 16:50	11/27/2019 12:50	12/3/2019 14:22	12/4/2019 12:42	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	36	Octacosane	95
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-14-0	24756-029	11/27/2019 16:50	11/27/2019 12:50	12/3/2019 14:22	12/4/2019 12:42	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	80	Octacosane	95
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-14-2	24756-030	11/27/2019 16:50	11/27/2019 13:00	12/3/2019 14:22	12/4/2019 13:15	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	99
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-14-2	24756-030	11/27/2019 16:50	11/27/2019 13:00	12/3/2019 14:22	12/4/2019 13:15	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	99
		* Acc Recovery:	45-170 %

Dilution Factor: 1
Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Diesel Range Organics - DROs (EPA 8015B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBBL1203191			12/3/2019 10:53	12/3/2019 12:02	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	79

Dilution Factor: 1
Data Qualifiers: None

* Acc Recovery: 45-170 %

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBBL1203191			12/3/2019 10:53	12/3/2019 12:02	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	79

Dilution Factor: 1
Data Qualifiers: None

* Acc Recovery: 45-170 %

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBBL1203192			12/3/2019 14:22	12/4/2019 4:46	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
DROs	<10	Octacosane	86

Dilution Factor: 1
Data Qualifiers: None

* Acc Recovery: 45-170 %

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBBL1203192			12/3/2019 14:22	12/4/2019 4:46	Soil

ANALYTE	mg/kg	Surrogate:	% RC*
MROs	<50	Octacosane	86

Dilution Factor: 1
Data Qualifiers: None

* Acc Recovery: 45-170 %

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1-0	24756-001	11/27/2019 16:50	11/27/2019 8:35	11/29/2019 10:00	12/4/2019 13:22	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	0.50

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: S5,

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1-2	24756-002	11/27/2019 16:50	11/27/2019 8:40	11/29/2019 10:00	12/4/2019 13:36	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	78

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1+5-0	24756-003	11/27/2019 16:50	11/27/2019 8:45	11/29/2019 10:00	12/4/2019 13:51	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	70

Surrogate:	% RC*
Decachlorobiphenyl	79

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1+5-2	24756-004	11/27/2019 16:50	11/27/2019 8:50	11/29/2019 10:00	12/4/2019 14:06	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	93

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-2-0	24756-005	11/27/2019 16:50	11/27/2019 8:55	11/29/2019 10:00	12/4/2019 14:21	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	78

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-2-2	24756-006	11/27/2019 16:50	11/27/2019 9:00	11/29/2019 10:00	12/4/2019 14:35	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	82

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-3-0	24756-007	11/27/2019 16:50	11/27/2019 9:05	11/29/2019 10:00	12/4/2019 14:50	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	79

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-3-2	24756-008	11/27/2019 16:50	11/27/2019 9:10	11/29/2019 10:00	12/4/2019 15:05	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	87

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-4-0	24756-009	11/27/2019 16:50	11/27/2019 9:15	11/29/2019 10:00	12/6/2019 8:38	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	117

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-4-1	24756-010	11/27/2019 16:50	11/27/2019 9:20	11/29/2019 10:00	12/6/2019 8:53	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	108

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-5-0	24756-011	11/27/2019 16:50	11/27/2019 9:25	11/29/2019 10:00	12/6/2019 9:07	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	106

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-5-2	24756-012	11/27/2019 16:50	11/27/2019 9:30	11/29/2019 10:00	12/6/2019 9:27	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	108

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
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Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-6-0	24756-013	11/27/2019 16:50	11/27/2019 9:35	11/29/2019 10:00	12/6/2019 9:42	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	98

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
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1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-6-2	24756-014	11/27/2019 16:50	11/27/2019 9:40	11/29/2019 10:00	12/6/2019 9:57	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	114

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
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Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-7-0	24756-015	11/27/2019 16:50	11/27/2019 9:45	11/29/2019 10:00	12/5/2019 11:56	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	97

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-7-2	24756-016	11/27/2019 16:50	11/27/2019 9:50	11/29/2019 10:00	12/6/2019 10:11	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	102

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-8-0	24756-017	11/27/2019 16:50	11/27/2019 9:55	11/29/2019 10:00	12/5/2019 12:10	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	110

Surrogate:	% RC*
Decachlorobiphenyl	91

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-8-1	24756-018	11/27/2019 16:50	11/27/2019 10:00	11/29/2019 10:00	12/6/2019 10:26	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	108

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-9-0	24756-019	11/27/2019 16:50	11/27/2019 11:00	12/3/2019 7:30	12/6/2019 10:41	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	17
4,4'-DDT	50-29-3	21
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	38
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	109

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-9-2	24756-020	11/27/2019 16:50	11/27/2019 11:05	12/3/2019 7:30	12/6/2019 10:55	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	110

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
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Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-10-0	24756-021	11/27/2019 16:50	11/27/2019 11:10	12/3/2019 7:30	12/6/2019 11:10	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	14
4,4'-DDT	50-29-3	24
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	18
Endosulfan II	33213-65-9	8.6
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	113

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-10-2	24756-022	11/27/2019 16:50	11/27/2019 11:20	12/3/2019 7:30	12/6/2019 11:25	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	105

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
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Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-11-0	24756-023	11/27/2019 16:50	11/27/2019 11:30	12/3/2019 7:30	12/6/2019 11:40	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	111

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
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Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-11-2	24756-024	11/27/2019 16:50	11/27/2019 11:40	12/3/2019 7:30	12/6/2019 11:54	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	102

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
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Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-12-2	24756-026	11/27/2019 16:50	11/27/2019 12:10	12/3/2019 7:30	12/6/2019 12:24	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	430
4,4'-DDE	72-55-9	430
4,4'-DDT	50-29-3	32
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	115

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: N1,

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-13-0	24756-027	11/27/2019 16:50	11/27/2019 12:30	12/3/2019 7:30	12/6/2019 13:37	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	28
4,4'-DDT	50-29-3	12
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	52

Surrogate:	% RC*
Decachlorobiphenyl	112

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-13-1	24756-028	11/27/2019 16:50	11/27/2019 12:40	12/3/2019 7:30	12/6/2019 13:52	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	19
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	106

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-14-0	24756-029	11/27/2019 16:50	11/27/2019 12:50	12/3/2019 7:30	12/6/2019 14:06	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	5.3
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	109

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-14-2	24756-030	11/27/2019 16:50	11/27/2019 13:00	12/3/2019 7:30	12/6/2019 14:21	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	107

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBAV1129191			11/29/2019 10:00	12/4/2019 10:10	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	118

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBAV1203191			12/3/2019 7:30	12/5/2019 10:13	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	106

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Polychlorinated Biphenyl's (EPA 8082)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1-0	24756-001	11/27/2019 16:50	11/27/2019 8:35	11/29/2019 10:00	12/4/2019 13:22	Soil

ANALYTE	CAS #	µg/kg
PCB-1016	12674-11-2	<25
PCB-1221	11104-28-2	<25
PCB-1232	11141-16-5	<25
PCB-1242	53469-21-9	<25
PCB-1248	12672-29-6	<25
PCB-1254	11097-69-1	<25
PCB-1260	11096-82-5	<25

Surrogate: % RC*
Decachlorobiphenyl 4.1
* Acceptable Recovery: 49-131 %
Dilution Factor: 1
Data Qualifiers: S5,

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1-2	24756-002	11/27/2019 16:50	11/27/2019 8:40	11/29/2019 10:00	12/4/2019 13:36	Soil

ANALYTE	CAS #	µg/kg
PCB-1016	12674-11-2	<25
PCB-1221	11104-28-2	<25
PCB-1232	11141-16-5	<25
PCB-1242	53469-21-9	<25
PCB-1248	12672-29-6	<25
PCB-1254	11097-69-1	<25
PCB-1260	11096-82-5	<25

Surrogate: % RC*
Decachlorobiphenyl 79
* Acceptable Recovery: 49-131 %
Dilution Factor: 1
Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1+5-0	24756-003	11/27/2019 16:50	11/27/2019 8:45	11/29/2019 10:00	12/4/2019 13:51	Soil

ANALYTE	CAS #	µg/kg
PCB-1016	12674-11-2	<25
PCB-1221	11104-28-2	<25
PCB-1232	11141-16-5	<25
PCB-1242	53469-21-9	<25
PCB-1248	12672-29-6	<25
PCB-1254	11097-69-1	<25
PCB-1260	11096-82-5	<25

Surrogate: % RC*
Decachlorobiphenyl 81
* Acceptable Recovery: 49-131 %
Dilution Factor: 1
Data Qualifiers: None

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Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Polychlorinated Biphenyl's (EPA 8082)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1+5-2	24756-004	11/27/2019 16:50	11/27/2019 8:50	11/29/2019 10:00	12/4/2019 14:06	Soil

ANALYTE	CAS #	µg/kg
PCB-1016	12674-11-2	<25
PCB-1221	11104-28-2	<25
PCB-1232	11141-16-5	<25
PCB-1242	53469-21-9	<25
PCB-1248	12672-29-6	<25
PCB-1254	11097-69-1	<25
PCB-1260	11096-82-5	<25

Surrogate:	% RC*
Decachlorobiphenyl	90

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBAV1129191			11/29/2019 10:00	12/4/2019 10:10	Soil

ANALYTE	CAS #	µg/kg
PCB-1016	12674-11-2	<25
PCB-1221	11104-28-2	<25
PCB-1232	11141-16-5	<25
PCB-1242	53469-21-9	<25
PCB-1248	12672-29-6	<25
PCB-1254	11097-69-1	<25
PCB-1260	11096-82-5	<25

Surrogate:	% RC*
Decachlorobiphenyl	108

* Acceptable Recovery: 49-131 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1-0	24756-001	11/27/2019 16:50	11/27/2019 8:35	12/2/2019 6:00	12/2/2019 11:02	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	60	50-133 %
Toluene-d8:	65	61-130 %
4-Bromofluorobenzene:	70	46-130 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1-2	24756-002	11/27/2019 16:50	11/27/2019 8:40	12/2/2019 6:00	12/2/2019 11:28	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	61	50-133 %
Toluene-d8:	66	61-130 %
4-Bromofluorobenzene:	70	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1+5-0	24756-003	11/27/2019 16:50	11/27/2019 8:45	12/2/2019 6:00	12/2/2019 11:49	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	61	50-133 %
Toluene-d8:	66	61-130 %
4-Bromofluorobenzene:	73	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-1+5-2	24756-004	11/27/2019 16:50	11/27/2019 8:50	12/2/2019 6:00	12/3/2019 9:24	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	59	50-133 %
Toluene-d8:	69	61-130 %
4-Bromofluorobenzene:	76	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-2-0	24756-005	11/27/2019 16:50	11/27/2019 8:55	12/2/2019 6:00	12/3/2019 9:45	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	59	50-133 %
Toluene-d8:	69	61-130 %
4-Bromofluorobenzene:	74	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-2-2	24756-006	11/27/2019 16:50	11/27/2019 9:00	12/2/2019 6:00	12/3/2019 10:06	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	57	50-133 %
Toluene-d8:	68	61-130 %
4-Bromofluorobenzene:	75	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-3-0	24756-007	11/27/2019 16:50	11/27/2019 9:05	12/2/2019 6:00	12/3/2019 10:30	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	63	50-133 %
Toluene-d8:	73	61-130 %
4-Bromofluorobenzene:	74	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-3-2	24756-008	11/27/2019 16:50	11/27/2019 9:10	12/2/2019 6:00	12/3/2019 10:52	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	63	50-133 %
Toluene-d8:	73	61-130 %
4-Bromofluorobenzene:	73	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-4-0	24756-009	11/27/2019 16:50	11/27/2019 9:15	12/2/2019 6:00	12/3/2019 11:13	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	63	50-133 %
Toluene-d8:	72	61-130 %
4-Bromofluorobenzene:	73	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-4-1	24756-010	11/27/2019 16:50	11/27/2019 9:20	12/2/2019 6:00	12/3/2019 11:35	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	63	50-133 %
Toluene-d8:	73	61-130 %
4-Bromofluorobenzene:	72	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-5-0	24756-011	11/27/2019 16:50	11/27/2019 9:25	12/2/2019 6:00	12/3/2019 11:57	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	64	50-133 %
Toluene-d8:	72	61-130 %
4-Bromofluorobenzene:	73	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-5-2	24756-012	11/27/2019 16:50	11/27/2019 9:30	12/2/2019 6:00	12/3/2019 12:19	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	62	50-133 %
Toluene-d8:	73	61-130 %
4-Bromofluorobenzene:	73	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-6-0	24756-013	11/27/2019 16:50	11/27/2019 9:35	12/2/2019 6:00	12/3/2019 12:41	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	62	50-133 %
Toluene-d8:	73	61-130 %
4-Bromofluorobenzene:	74	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-6-2	24756-014	11/27/2019 16:50	11/27/2019 9:40	12/2/2019 6:00	12/3/2019 13:02	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	63	50-133 %
Toluene-d8:	73	61-130 %
4-Bromofluorobenzene:	74	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-7-0	24756-015	11/27/2019 16:50	11/27/2019 9:45	12/2/2019 6:00	12/3/2019 13:45	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	62	50-133 %
Toluene-d8:	73	61-130 %
4-Bromofluorobenzene:	72	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-7-2	24756-016	11/27/2019 16:50	11/27/2019 9:50	12/2/2019 6:00	12/3/2019 14:07	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	63	50-133 %
Toluene-d8:	73	61-130 %
4-Bromofluorobenzene:	73	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-8-0	24756-017	11/27/2019 16:50	11/27/2019 9:55	12/2/2019 6:00	12/3/2019 14:29	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	63	50-133 %
Toluene-d8:	73	61-130 %
4-Bromofluorobenzene:	73	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-8-1	24756-018	11/27/2019 16:50	11/27/2019 10:00	12/2/2019 6:00	12/3/2019 14:50	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	63	50-133 %
Toluene-d8:	72	61-130 %
4-Bromofluorobenzene:	73	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-9-0	24756-019	11/27/2019 16:50	11/27/2019 11:00	12/2/2019 10:45	12/3/2019 15:10	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	61	50-133 %
Toluene-d8:	72	61-130 %
4-Bromofluorobenzene:	74	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-9-2	24756-020	11/27/2019 16:50	11/27/2019 11:05	12/2/2019 10:45	12/3/2019 15:32	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	62	50-133 %
Toluene-d8:	72	61-130 %
4-Bromofluorobenzene:	72	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-10-0	24756-021	11/27/2019 16:50	11/27/2019 11:10	12/2/2019 10:45	12/3/2019 15:54	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	62	50-133 %
Toluene-d8:	73	61-130 %
4-Bromofluorobenzene:	73	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-10-2	24756-022	11/27/2019 16:50	11/27/2019 11:20	12/2/2019 10:45	12/3/2019 16:36	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	63	50-133 %
Toluene-d8:	71	61-130 %
4-Bromofluorobenzene:	73	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-11-0	24756-023	11/27/2019 16:50	11/27/2019 11:30	12/2/2019 10:45	12/3/2019 16:57	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	63	50-133 %
Toluene-d8:	71	61-130 %
4-Bromofluorobenzene:	72	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-11-2	24756-024	11/27/2019 16:50	11/27/2019 11:40	12/2/2019 10:45	12/4/2019 10:50	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	64	50-133 %
Toluene-d8:	72	61-130 %
4-Bromofluorobenzene:	72	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-12-0	24756-025	11/27/2019 16:50	11/27/2019 12:00	12/2/2019 10:45	12/4/2019 11:12	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	63	50-133 %
Toluene-d8:	72	61-130 %
4-Bromofluorobenzene:	72	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-12-2	24756-026	11/27/2019 16:50	11/27/2019 12:10	12/2/2019 10:45	12/4/2019 11:34	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	65	50-133 %
Toluene-d8:	71	61-130 %
4-Bromofluorobenzene:	72	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-13-0	24756-027	11/27/2019 16:50	11/27/2019 12:30	12/2/2019 10:45	12/4/2019 11:55	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	64	50-133 %
Toluene-d8:	72	61-130 %
4-Bromofluorobenzene:	73	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-13-1	24756-028	11/27/2019 16:50	11/27/2019 12:40	12/2/2019 10:45	12/4/2019 12:17	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	65	50-133 %
Toluene-d8:	72	61-130 %
4-Bromofluorobenzene:	73	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-14-0	24756-029	11/27/2019 16:50	11/27/2019 12:50	12/2/2019 10:45	12/4/2019 12:39	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	63	50-133 %
Toluene-d8:	72	61-130 %
4-Bromofluorobenzene:	72	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-14-2	24756-030	11/27/2019 16:50	11/27/2019 13:00	12/2/2019 10:45	12/4/2019 13:01	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	65	50-133 %
Toluene-d8:	72	61-130 %
4-Bromofluorobenzene:	72	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBHT1202193			12/2/2019 10:45	12/3/2019 7:21	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	57	50-133 %
Toluene-d8:	69	61-130 %
4-Bromofluorobenzene:	76	46-130 %

Dilution Factor: 1

Data Qualifiers: None

Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Volatile Organics by GC/MS (EPA 8260B)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBMN1202191			12/2/2019 6:00	12/2/2019 7:12	Soil

ANALYTE	CAS #	µg/kg	ANALYTE	CAS #	µg/kg
t-Amyl methyl ether (TAME)	994-05-8	<10	trans-1,3-Dichloropropene	10061-02-6	<2.5
Benzene	71-43-2	<2.0	Diisopropyl ether (DIPE)	108-20-3	<10
Bromobenzene	108-86-1	<2.5	Ethyl t-butyl ether (ETBE)	637-92-3	<10
Bromochloromethane	74-97-5	<2.5	Ethylbenzene	100-41-4	<2.5
Bromodichloromethane	75-27-4	<2.5	Hexachlorobutadiene	87-68-3	<5.0
Bromoform	75-25-2	<2.5	Isopropylbenzene	98-82-8	<2.5
Bromomethane	74-83-9	<10	4-Isopropyltoluene	99-87-6	<2.5
tert-Butyl alcohol (TBA)	75-65-0	<50	Methyl t-butyl ether (MTBE)	1634-04-4	<5.0
n-Butylbenzene	104-51-8	<2.5	Methylene chloride	75-09-2	<10
sec-Butylbenzene	135-98-8	<2.5	Naphthalene	91-20-3	<2.5
tert-Butylbenzene	98-06-6	<2.5	n-Propylbenzene	103-65-1	<2.5
Carbon tetrachloride	56-23-5	<2.5	Styrene	100-42-5	<2.5
Chlorobenzene	108-90-7	<2.5	1,1,1,2-Tetrachloroethane	630-20-6	<2.5
Chloroethane	75-00-3	<5.0	1,1,2,2-Tetrachloroethane	79-34-5	<2.5
Chloroform	67-66-3	<2.5	Tetrachloroethene	127-18-4	<2.5
Chloromethane	74-87-3	<5.0	Toluene	108-88-3	<2.5
2-Chlorotoluene	95-49-8	<2.5	1,2,3-Trichlorobenzene	87-61-6	<2.5
4-Chlorotoluene	106-43-4	<2.5	1,2,4-Trichlorobenzene	120-82-1	<2.5
Dibromochloromethane	124-48-1	<2.5	1,1,1-Trichloroethane	71-55-6	<2.5
1,2-Dibromo-3-chloropropane	96-12-8	<5.0	1,1,2-Trichloroethane	79-00-5	<2.5
1,2-Dibromoethane	106-93-4	<2.5	Trichloroethene	79-01-6	<2.5
Dibromomethane	74-95-3	<2.5	Trichlorofluoromethane	75-69-4	<5.0
1,2-Dichlorobenzene	95-50-1	<2.5	1,2,3-Trichloropropane	96-18-4	<2.5
1,3-Dichlorobenzene	541-73-1	<2.5	1,2,4-Trimethylbenzene	95-63-6	<2.5
1,4-Dichlorobenzene	106-46-7	<2.5	1,3,5-Trimethylbenzene	108-67-8	<2.5
Dichlorodifluoromethane	75-71-8	<2.5	Vinyl Chloride	75-01-4	<2.5
1,1-Dichloroethane	75-34-3	<2.5	Xylenes, Total	1330-20-7	<2.0
1,2-Dichloroethane	107-06-2	<2.5			
1,1-Dichloroethene	75-35-4	<2.5			
cis-1,2-Dichloroethene	156-59-2	<2.5			
trans-1,2-Dichloroethene	156-60-5	<2.5			
1,2-Dichloropropane	78-87-5	<2.5			
1,3-Dichloropropane	142-28-9	<2.5			
2,2-Dichloropropane	594-20-7	<2.5			
1,1-Dichloropropene	563-58-6	<2.5			
cis-1,3-Dichloropropene	10061-01-5	<2.5			

Surrogate:	% RC	Acceptable % RC
Dibromofluoromethane:	61	50-133 %
Toluene-d8:	64	61-130 %
4-Bromofluorobenzene:	69	46-130 %

Dilution Factor: 1

Data Qualifiers: None

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Mr. Chris Livesey
GeoTek, Inc.
1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organics

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-1-0	24756-001	11/27/2019	16:50	11/27/2019	8:35	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/02/19 11:02	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	60	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-1-2	24756-002	11/27/2019	16:50	11/27/2019	8:40	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/02/19 11:28	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	61	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-1+5-0	24756-003	11/27/2019	16:50	11/27/2019	8:45	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/02/19 12:11	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	61	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-1+5-2	24756-004	11/27/2019	16:50	11/27/2019	8:50	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/03/19 09:24	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	59	50 - 133%	--

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1384 Poinsettia Ave Ste A
Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organics

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-2-0	24756-005	11/27/2019	16:50	11/27/2019	8:55	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/03/19 09:45	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	59	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-2-2	24756-006	11/27/2019	16:50	11/27/2019	9:00	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/03/19 10:06	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	57	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-3-0	24756-007	11/27/2019	16:50	11/27/2019	9:05	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/03/19 10:30	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	63	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-3-2	24756-008	11/27/2019	16:50	11/27/2019	9:10	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/03/19 10:52	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	63	50 - 133%	--

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Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organics

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-4-0	24756-009	11/27/2019	16:50	11/27/2019	9:15	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/03/19 11:13	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	63	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-4-1	24756-010	11/27/2019	16:50	11/27/2019	9:20	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/03/19 11:35	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	63	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-5-0	24756-011	11/27/2019	16:50	11/27/2019	9:25	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/03/19 11:57	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	64	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-5-2	24756-012	11/27/2019	16:50	11/27/2019	9:30	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/03/19 12:19	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	62	50 - 133%	--

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organics

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-6-0	24756-013	11/27/2019	16:50	11/27/2019	9:35	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/03/19 12:41	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	62	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-6-2	24756-014	11/27/2019	16:50	11/27/2019	9:40	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/03/19 13:02	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	63	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-7-0	24756-015	11/27/2019	16:50	11/27/2019	9:45	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	0.32	mg/kg	12/02/19 06:00	12/03/19 13:45	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	62	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-7-2	24756-016	11/27/2019	16:50	11/27/2019	9:50	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/03/19 14:07	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	63	50 - 133%	--

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organics

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-8-0	24756-017	11/27/2019	16:50	11/27/2019	9:55	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/03/19 14:29	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	63	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-8-1	24756-018	11/27/2019	16:50	11/27/2019	10:00	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	0.32	mg/kg	12/02/19 06:00	12/03/19 14:50	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	63	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-9-0	24756-019	11/27/2019	16:50	11/27/2019	11:00	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 10:45	12/03/19 15:10	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	61	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-9-2	24756-020	11/27/2019	16:50	11/27/2019	11:05	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 10:45	12/03/19 15:32	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	62	50 - 133%	--

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organics

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-10-0	24756-021	11/27/2019	16:50	11/27/2019	11:10	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 10:45	12/03/19 15:32	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	62	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-10-2	24756-022	11/27/2019	16:50	11/27/2019	11:20	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 10:45	12/03/19 16:36	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	63	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-11-0	24756-023	11/27/2019	16:50	11/27/2019	11:30	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 10:45	12/03/19 16:57	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	63	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-11-2	24756-024	11/27/2019	16:50	11/27/2019	11:40	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 10:45	12/04/19 10:50	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	64	50 - 133%	--

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Lab Reference #: GTK 24756
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Project #: 3611-SD

Organics

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-12-0	24756-025	11/27/2019	16:50	11/27/2019	12:00	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 10:45	12/04/19 11:12	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	63	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-12-2	24756-026	11/27/2019	16:50	11/27/2019	12:10	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 10:45	12/04/19 11:34	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	65	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-13-0	24756-027	11/27/2019	16:50	11/27/2019	12:30	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 10:45	12/04/19 11:55	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	64	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-13-1	24756-028	11/27/2019	16:50	11/27/2019	12:40	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 10:45	12/04/19 12:17	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	65	50 - 133%	--

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Organics

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-14-0	24756-029	11/27/2019	16:50	11/27/2019	12:50	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 10:45	12/04/19 12:39	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	63	50 - 133%	--

Client Sample ID	Lab Sample Number	Date Received		Date Sampled		Matrix
GB-14-2	24756-030	11/27/2019	16:50	11/27/2019	13:00	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
GROs	8015M	<0.25	mg/kg	12/02/19 10:45	12/04/19 13:01	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	65	50 - 133%	--

Method Blank						Soil

MB ID	ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
MBHT1202193	GROs	8015M	<0.25	mg/kg	12/02/19 10:45	12/03/19 07:21	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	57	50 - 133%	--

Method Blank						Soil

MB ID	ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
MBMN1202191	GROs	8015M	<0.25	mg/kg	12/02/19 06:00	12/02/19 07:12	--	1

Surrogate	Result (%)	Limits	Qual
Dibromofluoromethane	61	50 - 133%	--

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-1-0	24756-001	11/27/2019 16:50	11/27/2019 8:35	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1
Barium	6010B	41	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1
Chromium	6010B	12	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1
Cobalt	6010B	3.4	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1
Copper	6010B	14	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1
Lead	6010B	14	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 14:46	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1
Nickel	6010B	5.4	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1
Vanadium	6010B	22	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1
Zinc	6010B	120	mg/kg	12/03/19 17:05	12/06/19 16:26	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-1-2	24756-002	11/27/2019 16:50	11/27/2019 8:40	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1
Arsenic	6010B	2.5	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1
Barium	6010B	51	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1
Chromium	6010B	14	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1
Cobalt	6010B	4.2	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1
Copper	6010B	<5.0	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1
Lead	6010B	5.4	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 14:51	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1
Nickel	6010B	5.5	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1
Vanadium	6010B	38	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1
Zinc	6010B	8.9	mg/kg	12/03/19 17:05	12/06/19 16:40	--	1

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Lab Reference #: GTK 24756
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Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-1+5-0	24756-003	11/27/2019 16:50	11/27/2019 8:45	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1
Barium	6010B	44	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1
Chromium	6010B	16	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1
Cobalt	6010B	3.8	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1
Copper	6010B	11	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1
Lead	6010B	9.5	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 14:53	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1
Nickel	6010B	5.4	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1
Vanadium	6010B	32	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1
Zinc	6010B	54	mg/kg	12/03/19 17:05	12/06/19 16:44	--	1

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Lab Reference #: GTK 24756
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Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-1+5-2	24756-004	11/27/2019 16:50	11/27/2019 8:50	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1
Barium	6010B	32	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1
Chromium	6010B	7.4	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1
Cobalt	6010B	4.7	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1
Copper	6010B	5.0	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1
Lead	6010B	3.6	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 14:55	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1
Nickel	6010B	4.5	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1
Vanadium	6010B	16	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1
Zinc	6010B	10	mg/kg	12/03/19 17:05	12/06/19 17:02	--	1

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Lab Reference #: GTK 24756
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Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-2-0	24756-005	11/27/2019 16:50	11/27/2019 8:55	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1
Barium	6010B	52	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1
Chromium	6010B	11	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1
Cobalt	6010B	4.3	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1
Copper	6010B	14	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1
Lead	6010B	4.5	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 14:56	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1
Nickel	6010B	7.9	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1
Vanadium	6010B	26	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1
Zinc	6010B	55	mg/kg	12/03/19 17:05	12/06/19 17:04	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-2-2	24756-006	11/27/2019 16:50	11/27/2019 9:00	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1
Barium	6010B	30	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1
Chromium	6010B	15	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1
Cobalt	6010B	4.3	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1
Copper	6010B	6.2	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1
Lead	6010B	3.4	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:02	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1
Nickel	6010B	8.9	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1
Vanadium	6010B	27	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1
Zinc	6010B	21	mg/kg	12/03/19 17:05	12/06/19 17:07	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-3-0	24756-007	11/27/2019 16:50	11/27/2019 9:05	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1
Barium	6010B	48	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1
Chromium	6010B	10	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1
Cobalt	6010B	6.1	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1
Copper	6010B	12	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1
Lead	6010B	3.5	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:04	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1
Nickel	6010B	12	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1
Vanadium	6010B	26	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1
Zinc	6010B	49	mg/kg	12/03/19 17:05	12/06/19 17:09	--	1

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Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-3-2	24756-008	11/27/2019 16:50	11/27/2019 9:10	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1
Barium	6010B	15	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1
Chromium	6010B	9.3	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1
Cobalt	6010B	3.7	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1
Copper	6010B	<5.0	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1
Lead	6010B	3.8	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:05	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1
Nickel	6010B	3.5	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1
Vanadium	6010B	21	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1
Zinc	6010B	7.9	mg/kg	12/03/19 17:05	12/06/19 17:11	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-4-0	24756-009	11/27/2019 16:50	11/27/2019 9:15	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1
Barium	6010B	33	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1
Chromium	6010B	10	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1
Cobalt	6010B	3.4	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1
Copper	6010B	8.4	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1
Lead	6010B	3.7	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:07	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1
Nickel	6010B	7.2	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1
Vanadium	6010B	21	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1
Zinc	6010B	41	mg/kg	12/03/19 17:05	12/06/19 17:14	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-4-1	24756-010	11/27/2019 16:50	11/27/2019 9:20	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1
Barium	6010B	11	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1
Chromium	6010B	13	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1
Cobalt	6010B	2.3	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1
Copper	6010B	<5.0	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1
Lead	6010B	3.6	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1
Mercury	7471A	0.99	mg/kg	12/03/19 15:01	12/04/19 15:09	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1
Nickel	6010B	3.4	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1
Vanadium	6010B	21	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1
Zinc	6010B	8.1	mg/kg	12/03/19 17:05	12/06/19 17:17	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-5-0	24756-011	11/27/2019 16:50	11/27/2019 9:25	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1
Barium	6010B	54	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1
Chromium	6010B	17	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1
Cobalt	6010B	4.3	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1
Copper	6010B	25	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1
Lead	6010B	9.1	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:11	--	1
Molybdenum	6010B	1.1	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1
Nickel	6010B	11	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1
Vanadium	6010B	22	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1
Zinc	6010B	120	mg/kg	12/03/19 17:05	12/06/19 17:19	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-5-2	24756-012	11/27/2019 16:50	11/27/2019 9:30	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1
Barium	6010B	13	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1
Chromium	6010B	16	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1
Cobalt	6010B	3.4	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1
Copper	6010B	<5.0	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1
Lead	6010B	4.0	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:12	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1
Nickel	6010B	7.0	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1
Vanadium	6010B	31	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1
Zinc	6010B	11	mg/kg	12/03/19 17:05	12/06/19 17:22	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-6-0	24756-013	11/27/2019 16:50	11/27/2019 9:35	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1
Arsenic	6010B	3.2	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1
Barium	6010B	43	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1
Chromium	6010B	10	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1
Cobalt	6010B	4.0	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1
Copper	6010B	7.0	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1
Lead	6010B	4.8	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:14	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1
Nickel	6010B	4.8	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1
Vanadium	6010B	25	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1
Zinc	6010B	22	mg/kg	12/03/19 17:05	12/06/19 17:24	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-6-2	24756-014	11/27/2019 16:50	11/27/2019 9:40	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1
Arsenic	6010B	4.3	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1
Barium	6010B	22	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1
Chromium	6010B	6.9	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1
Cobalt	6010B	3.6	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1
Copper	6010B	<5.0	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1
Lead	6010B	4.7	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:16	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1
Nickel	6010B	3.9	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1
Vanadium	6010B	14	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1
Zinc	6010B	14	mg/kg	12/03/19 17:05	12/06/19 17:32	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-7-0	24756-015	11/27/2019 16:50	11/27/2019 9:45	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1
Arsenic	6010B	2.4	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1
Barium	6010B	35	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1
Chromium	6010B	11	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1
Cobalt	6010B	3.5	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1
Copper	6010B	6.8	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1
Lead	6010B	5.3	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:17	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1
Nickel	6010B	4.2	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1
Vanadium	6010B	23	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1
Zinc	6010B	34	mg/kg	12/03/19 17:05	12/06/19 17:35	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-7-2	24756-016	11/27/2019 16:50	11/27/2019 9:50	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1
Barium	6010B	17	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1
Chromium	6010B	11	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1
Cobalt	6010B	3.8	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1
Copper	6010B	<5.0	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1
Lead	6010B	4.3	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:23	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1
Nickel	6010B	5.2	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1
Vanadium	6010B	23	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1
Zinc	6010B	8.1	mg/kg	12/03/19 17:05	12/06/19 17:38	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-8-0	24756-017	11/27/2019 16:50	11/27/2019 9:55	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1
Arsenic	6010B	2.5	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1
Barium	6010B	49	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1
Chromium	6010B	11	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1
Cobalt	6010B	3.5	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1
Copper	6010B	6.8	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1
Lead	6010B	6.1	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:24	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1
Nickel	6010B	4.1	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1
Vanadium	6010B	23	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1
Zinc	6010B	38	mg/kg	12/03/19 17:05	12/06/19 17:41	--	1

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Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-8-1	24756-018	11/27/2019 16:50	11/27/2019 10:00	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1
Arsenic	6010B	2.4	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1
Barium	6010B	400	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1
Chromium	6010B	11	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1
Cobalt	6010B	3.3	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1
Copper	6010B	6.1	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1
Lead	6010B	5.4	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:26	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1
Nickel	6010B	4.7	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1
Vanadium	6010B	29	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1
Zinc	6010B	17	mg/kg	12/03/19 17:05	12/06/19 17:44	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-9-0	24756-019	11/27/2019 16:50	11/27/2019 11:00	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1
Barium	6010B	33	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1
Chromium	6010B	11	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1
Cobalt	6010B	3.1	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1
Copper	6010B	10	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1
Lead	6010B	5.6	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:28	--	1
Molybdenum	6010B	2.3	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1
Nickel	6010B	5.2	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1
Vanadium	6010B	22	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1
Zinc	6010B	31	mg/kg	12/03/19 17:05	12/06/19 17:47	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-9-2	24756-020	11/27/2019 16:50	11/27/2019 11:05	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1
Barium	6010B	110	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1
Chromium	6010B	11	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1
Cobalt	6010B	3.3	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1
Copper	6010B	<5.0	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1
Lead	6010B	4.1	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:30	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1
Nickel	6010B	4.7	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1
Vanadium	6010B	25	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1
Zinc	6010B	11	mg/kg	12/03/19 17:05	12/06/19 17:49	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-10-0	24756-021	11/27/2019 16:50	11/27/2019 11:10	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1
Arsenic	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1
Barium	6010B	63	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1
Beryllium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1
Cadmium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1
Chromium	6010B	12	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1
Cobalt	6010B	6.9	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1
Copper	6010B	24	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1
Lead	6010B	4.4	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:37	--	1
Molybdenum	6010B	1.0	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1
Nickel	6010B	12	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1
Selenium	6010B	<4.8	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1
Silver	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1
Thallium	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1
Vanadium	6010B	29	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1
Zinc	6010B	93	mg/kg	12/02/19 09:00	12/03/19 20:53	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-10-2	24756-022	11/27/2019 16:50	11/27/2019 11:20	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1
Arsenic	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1
Barium	6010B	19	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1
Beryllium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1
Cadmium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1
Chromium	6010B	11	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1
Cobalt	6010B	4.2	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1
Copper	6010B	<5.0	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1
Lead	6010B	5.0	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:45	--	1
Molybdenum	6010B	<1.0	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1
Nickel	6010B	4.9	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1
Selenium	6010B	<4.8	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1
Silver	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1
Thallium	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1
Vanadium	6010B	25	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1
Zinc	6010B	11	mg/kg	12/02/19 09:00	12/03/19 20:57	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-11-0	24756-023	11/27/2019 16:50	11/27/2019 11:30	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1
Arsenic	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1
Barium	6010B	37	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1
Beryllium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1
Cadmium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1
Chromium	6010B	9.2	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1
Cobalt	6010B	3.3	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1
Copper	6010B	11	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1
Lead	6010B	4.5	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:47	--	1
Molybdenum	6010B	<1.0	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1
Nickel	6010B	4.5	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1
Selenium	6010B	<4.8	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1
Silver	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1
Thallium	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1
Vanadium	6010B	19	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1
Zinc	6010B	54	mg/kg	12/02/19 09:00	12/03/19 21:01	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-11-2	24756-024	11/27/2019 16:50	11/27/2019 11:40	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1
Arsenic	6010B	2.6	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1
Barium	6010B	13	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1
Beryllium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1
Cadmium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1
Chromium	6010B	11	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1
Cobalt	6010B	1.9	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1
Copper	6010B	<5.0	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1
Lead	6010B	4.0	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:49	--	1
Molybdenum	6010B	<1.0	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1
Nickel	6010B	3.0	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1
Selenium	6010B	<4.8	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1
Silver	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1
Thallium	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1
Vanadium	6010B	26	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1
Zinc	6010B	5.6	mg/kg	12/02/19 09:00	12/03/19 21:04	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-12-0	24756-025	11/27/2019 16:50	11/27/2019 12:00	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1
Arsenic	6010B	4.2	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1
Barium	6010B	20	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1
Beryllium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1
Cadmium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1
Chromium	6010B	7.4	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1
Cobalt	6010B	3.0	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1
Copper	6010B	<5.0	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1
Lead	6010B	4.3	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:50	--	1
Molybdenum	6010B	<1.0	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1
Nickel	6010B	2.9	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1
Selenium	6010B	<4.8	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1
Silver	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1
Thallium	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1
Vanadium	6010B	15	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1
Zinc	6010B	31	mg/kg	12/02/19 09:00	12/03/19 21:08	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-12-2	24756-026	11/27/2019 16:50	11/27/2019 12:10	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1
Arsenic	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1
Barium	6010B	31	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1
Beryllium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1
Cadmium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1
Chromium	6010B	7.7	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1
Cobalt	6010B	2.8	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1
Copper	6010B	<5.0	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1
Lead	6010B	7.2	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:52	--	1
Molybdenum	6010B	<1.0	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1
Nickel	6010B	3.1	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1
Selenium	6010B	<4.8	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1
Silver	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1
Thallium	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1
Vanadium	6010B	16	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1
Zinc	6010B	24	mg/kg	12/02/19 09:00	12/03/19 21:12	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-13-0	24756-027	11/27/2019 16:50	11/27/2019 12:30	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1
Barium	6010B	27	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1
Chromium	6010B	8.2	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1
Cobalt	6010B	3.5	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1
Copper	6010B	7.8	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1
Lead	6010B	4.3	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:54	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1
Nickel	6010B	3.5	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1
Vanadium	6010B	17	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1
Zinc	6010B	25	mg/kg	12/03/19 17:05	12/06/19 18:22	--	1

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Vista, CA, 92008

Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-13-1	24756-028	11/27/2019 16:50	11/27/2019 12:40	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1
Barium	6010B	35	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1
Chromium	6010B	11	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1
Cobalt	6010B	3.5	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1
Copper	6010B	8.2	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1
Lead	6010B	4.0	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:56	--	1
Molybdenum	6010B	1.1	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1
Nickel	6010B	3.7	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1
Vanadium	6010B	17	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1
Zinc	6010B	27	mg/kg	12/03/19 17:05	12/06/19 18:25	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-14-0	24756-029	11/27/2019 16:50	11/27/2019 12:50	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1
Arsenic	6010B	5.9	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1
Barium	6010B	36	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1
Chromium	6010B	12	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1
Cobalt	6010B	3.8	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1
Copper	6010B	32	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1
Lead	6010B	6.0	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:57	--	1
Molybdenum	6010B	1.1	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1
Nickel	6010B	4.5	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1
Vanadium	6010B	19	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1
Zinc	6010B	120	mg/kg	12/03/19 17:05	12/06/19 18:28	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-14-2	24756-030	11/27/2019 16:50	11/27/2019 13:00	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1
Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1
Barium	6010B	14	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1
Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1
Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1
Chromium	6010B	6.5	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1
Cobalt	6010B	3.4	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1
Copper	6010B	<5.0	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1
Lead	6010B	3.5	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1
Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:59	--	1
Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1
Nickel	6010B	2.6	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1
Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1
Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1
Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1
Vanadium	6010B	15	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1
Zinc	6010B	14	mg/kg	12/03/19 17:05	12/06/19 18:36	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
Method Blank				Soil

MB ID	ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
MBIR1202191	Antimony	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1
MBIR1202191	Arsenic	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1
MBIR1202191	Barium	6010B	<1.0	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1
MBIR1202191	Beryllium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1
MBIR1202191	Cadmium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1
MBIR1202191	Chromium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1
MBIR1202191	Cobalt	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1
MBIR1202191	Copper	6010B	<5.0	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1
MBIR1202191	Lead	6010B	<0.80	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1
MBSR1203192	Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 14:41	--	1
MBIR1202191	Molybdenum	6010B	<1.0	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1
MBIR1202191	Nickel	6010B	<1.0	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1
MBIR1202191	Selenium	6010B	<4.8	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1
MBIR1202191	Silver	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1
MBIR1202191	Thallium	6010B	<2.0	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1
MBIR1202191	Vanadium	6010B	<0.50	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1
MBIR1202191	Zinc	6010B	<5.0	mg/kg	12/02/19 09:00	12/03/19 20:20	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
Method Blank				Soil

MB ID	ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
MBJQ1203191	Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1
MBJQ1203191	Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1
MBJQ1203191	Barium	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1
MBJQ1203191	Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1
MBJQ1203191	Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1
MBJQ1203191	Chromium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1
MBJQ1203191	Cobalt	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1
MBJQ1203191	Copper	6010B	<5.0	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1
MBJQ1203191	Lead	6010B	<0.80	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1
MBSR1203193	Mercury	7471A	<0.10	mg/kg	12/03/19 15:01	12/04/19 15:31	--	1
MBJQ1203191	Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1
MBJQ1203191	Nickel	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1
MBJQ1203191	Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1
MBJQ1203191	Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1
MBJQ1203191	Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1
MBJQ1203191	Vanadium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1
MBJQ1203191	Zinc	6010B	<5.0	mg/kg	12/03/19 17:05	12/06/19 16:14	--	1

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Lab Reference #: GTK 24756
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
Method Blank				Soil

MB ID	ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
MBJQ1203192	Antimony	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1
MBJQ1203192	Arsenic	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1
MBJQ1203192	Barium	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1
MBJQ1203192	Beryllium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1
MBJQ1203192	Cadmium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1
MBJQ1203192	Chromium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1
MBJQ1203192	Cobalt	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1
MBJQ1203192	Copper	6010B	<5.0	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1
MBJQ1203192	Lead	6010B	<0.80	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1
MBJQ1203192	Molybdenum	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1
MBJQ1203192	Nickel	6010B	<1.0	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1
MBJQ1203192	Selenium	6010B	<4.8	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1
MBJQ1203192	Silver	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1
MBJQ1203192	Thallium	6010B	<2.0	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1
MBJQ1203192	Vanadium	6010B	<0.50	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1
MBJQ1203192	Zinc	6010B	<5.0	mg/kg	12/03/19 17:05	12/06/19 17:57	--	1

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QA/QC Report
for
Extactable Fuel Hydrocarbons (EPA 8015B/8015M)
Reporting units: ppm

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Date of Extraction: 12/3/2019 10:53
Date of Analysis: 12/3/2019 13:17
Dup Date of Analysis: 12/3/2019 13:37
Laboratory Sample #: 24756-004
MS/MSD Qualifiers: None
Reference #: GTK 24756

Analyte	R1	SPC CONC	MS	MSD	%MS	%MSD	RPD	ACP %MS	ACP RPD	Qual
EFH as Diesel	0.00	1000	981	911	98	91	7	62-154	28	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	MS	MSD	Qual
Octacosane	81	79	☐

LCS	LCSD	Qual
80	80	☐

ACP % RC
45-170

Laboratory Control Sample

Date of Extraction: 12/3/2019 10:53
Date of Analysis: 12/3/2019 12:36
Dup Date of Analysis: 12/3/2019 12:56
Laboratory Sample #: BL1203191
LCS Qualifiers: None

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
EFH as Diesel	1000	906	909	91	91	0	70-140	20	☐

QA/QC Report
for
Extactable Fuel Hydrocarbons (EPA 8015B/8015M)
Reporting units: ppm

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Date of Extraction: 12/3/2019 14:22
Date of Analysis: 12/4/2019 6:00
Dup Date of Analysis: 12/4/2019 6:21
Laboratory Sample #: 24756-024
MS/MSD Qualifiers: None
Reference #: GTK 24756

Analyte	R1	SPC CONC	MS	MSD	%MS	%MSD	RPD	ACP %MS	ACP RPD	Qual
EFH as Diesel	0.00	1000	918	882	92	88	4	62-154	28	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	MS	MSD	Qual
Octacosane	79	76	☐

LCS	LCSD	Qual
80	80	☐

ACP % RC
45-170

Laboratory Control Sample

Date of Extraction: 12/3/2019 14:22
Date of Analysis: 12/4/2019 5:19
Dup Date of Analysis: 12/4/2019 5:39
Laboratory Sample #: BL1203192
LCS Qualifiers: None

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
EFH as Diesel	1000	874	910	87	91	4	70-140	20	☐

QA/QC Report
for
Organochlorine Pesticides (EPA 8081A)
Reporting units: ppb

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Date of Extraction: 11/29/2019 10:00
Date of Analysis: 12/4/2019 12:52
Dup Date of Analysis: 12/4/2019 13:07
Laboratory Sample #: 24756-008
MS/MSD Qualifiers: None
Reference #: GTK 24756

Analyte	R1	SPC CONC	MS	MSD	%MS	%MSD	RPD	ACP %MS	ACP RPD	Qual
Gamma-BHC	0.00	20.0	14.3	16.1	72	81	12	41-130	25	☐
Heptachlor	0.00	20.0	13.4	15.3	67	76	13	36-130	26	☐
Aldrin	0.00	20.0	12.8	15.8	64	79	21	41-130	25	☐
Dieldrin	0.00	40.0	38.9	41.7	97	104	7	39-137	23	☐
Endrin	0.00	40.0	39.1	41.8	98	104	7	46-150	25	☐
DDT	0.00	40.0	45.1	47.4	113	119	5	41-148	25	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	MS	MSD	Qual
Decachlorobiphenyl	104	101	☐

LCS	LCSD	Qual
105	104	☐

ACP % RC
49-131

Laboratory Control Sample

Date of Extraction: 11/29/2019 10:00
Date of Analysis: 12/3/2019 13:27
Dup Date of Analysis: 12/3/2019 13:42
Laboratory Sample #: AV1129191A
LCS Qualifiers: None

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
Gamma-BHC	20.0	17.0	15.0	85	75	13	45-130	25	☐
Heptachlor	20.0	15.5	13.1	77	66	17	42-130	27	☐
Aldrin	20.0	16.6	14.0	83	70	17	44-130	26	☐
Dieldrin	40.0	40.8	39.4	102	99	3	43-131	20	☐
Endrin	40.0	40.8	40.2	102	100	1	47-145	20	☐
DDT	40.0	46.1	48.8	115	122	6	45-140	20	☐

QA/QC Report
for
Organochlorine Pesticides (EPA 8081A)
Reporting units: ppb

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Date of Extraction: 12/3/2019 7:30
Date of Analysis: 12/5/2019 10:57
Dup Date of Analysis: 12/5/2019 11:11
Laboratory Sample #: 24756-020
MS/MSD Qualifiers: None
Reference #: GTK 24756

Analyte	R1	SPC CONC	MS	MSD	%MS	%MSD	RPD	ACP %MS	ACP RPD	Qual
Gamma-BHC	0.00	20.0	16.6	16.7	83	84	1	41-130	25	☐
Heptachlor	0.00	20.0	15.3	14.0	76	70	9	36-130	26	☐
Aldrin	0.00	20.0	16.6	15.4	83	77	8	41-130	25	☐
Dieldrin	0.00	40.0	42.3	44.8	106	112	6	39-137	23	☐
Endrin	0.00	40.0	43.9	46.0	110	115	5	46-150	25	☐
DDT	0.00	40.0	54.6	55.7	137	139	2	41-148	25	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	MS	MSD	Qual
Decachlorobiphenyl	109	107	☐

LCS	LCSD	Qual
108	108	☐

ACP % RC
49-131

Laboratory Control Sample

Date of Extraction: 12/3/2019 7:30
Date of Analysis: 12/5/2019 10:27
Dup Date of Analysis: 12/5/2019 10:42
Laboratory Sample #: AV1203191A
LCS Qualifiers: None

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
Gamma-BHC	20.0	16.4	16.2	82	81	1	45-130	25	☐
Heptachlor	20.0	14.2	14.2	71	71	0	42-130	27	☐
Aldrin	20.0	15.2	15.0	76	75	1	44-130	26	☐
Dieldrin	40.0	44.8	41.2	112	103	8	43-131	20	☐
Endrin	40.0	45.1	42.1	113	105	7	47-145	20	☐
DDT	40.0	54.3	50.8	136	127	7	45-140	20	☐

QA/QC Report
for
Polychlorinated Biphenyl's (EPA 8082)
Reporting units: ppb

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Date of Extraction: 11/29/2019 10:00
Date of Analysis: 12/4/2019 18:27
Dup Date of Analysis: 12/4/2019 18:41
Laboratory Sample #: 24756-008
MS/MSD Qualifiers: R2,
Reference #: GTK 24756

Analyte	R1	SPC CONC	MS	MSD	%MS	%MSD	RPD	ACP %MS	ACP RPD	Qual
PCB-1016	0.00	150	124	160	83	107	25	39-130	20	☑
PCB-1260	0.00	150	130	134	87	89	3	39-141	20	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	MS	MSD	Qual
Decachlorobiphenyl	90	88	☐

LCS	LCSD	Qual
94	107	☐

ACP % RC
49-131

Laboratory Control Sample

Date of Extraction: 11/29/2019 10:00
Date of Analysis: 12/3/2019 13:57
Dup Date of Analysis: 12/3/2019 14:11
Laboratory Sample #: AV1129191B
LCS Qualifiers: None

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
PCB-1016	150	135	115	90	77	16	39-130	23	☐
PCB-1260	150	169	143	113	95	17	54-130	20	☐

QA/QC Report
for
Volatile Organic Compounds (EPA 8260B)
Reporting units: ppb

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Date of Extraction: 12/2/2019 5:50
Date of Analysis: 12/2/2019 8:13
Dup Date of Analysis: 12/2/2019 8:33
Laboratory Sample #: 24755-001
MS/MSD Qualifiers: None
Reference #: GTK 24756

Analyte	R1	SPC CONC	MS	MSD	%MS	%MSD	RPD	ACP %MS	ACP RPD	Qual
1,1-Dichloroethene	0.00	10.0	8.98	8.96	90	90	0	54-130	20	☐
Benzene	0.00	10.0	10.5	10.4	105	104	1	70-133	20	☐
Trichloroethene	0.00	10.0	12.7	12.4	127	124	2	70-135	20	☐
Toluene	0.00	10.0	10.4	10.1	104	101	3	57-135	20	☐
Chlorobenzene	0.00	10.0	11.5	11.1	115	111	4	70-132	20	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	MS	MSD	Qual
Dibromofluoromethane	61	62	☐
Toluene-d8	65	65	☐
4-Bromofluorobenzene	71	71	☐

LCS	LCSD	Qual
60	62	☐
64	65	☐
69	71	☐

ACP % RC
50-133
61-130
46-130

Laboratory Control Sample

Date of Extraction: 12/2/2019 5:50
Date of Analysis: 12/2/2019 7:32
Dup Date of Analysis: 12/2/2019 7:52
Laboratory Sample #: MN1202191
LCS Qualifiers: None

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
1,1-Dichloroethene	10.0	7.97	9.22	80	92	15	55-130	20	☐
Benzene	10.0	9.40	10.9	94	109	15	70-133	20	☐
Trichloroethene	10.0	11.5	13.0	115	130	12	70-134	20	☐
Toluene	10.0	9.22	10.3	92	103	11	57-134	20	☐
Chlorobenzene	10.0	10.0	11.4	100	114	13	70-131	20	☐

QA/QC Report
for
Volatile Organic Compounds (EPA 8260B)
Reporting units: ppb

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Date of Extraction: 12/3/2019 6:17
Date of Analysis: 12/3/2019 8:42
Dup Date of Analysis: 12/3/2019 9:03
Laboratory Sample #: 24756-004
MS/MSD Qualifiers: None
Reference #: GTK 24756

Analyte	R1	SPC CONC	MS	MSD	%MS	%MSD	RPD	ACP %MS	ACP RPD	Qual
1,1-Dichloroethene	0.00	10.0	8.22	7.95	82	79	3	54-130	20	☐
Benzene	0.00	10.0	10.2	10.3	102	103	1	70-133	20	☐
Trichloroethene	0.00	10.0	12.4	12.1	124	121	2	70-135	20	☐
Toluene	0.00	10.0	10.9	10.9	109	109	0	57-135	20	☐
Chlorobenzene	0.00	10.0	12.3	12.1	123	121	2	70-132	20	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	MS	MSD	Qual
Dibromofluoromethane	58	59	☐
Toluene-d8	69	69	☐
4-Bromofluorobenzene	77	77	☐

LCS	LCSD	Qual
58	58	☐
68	68	☐
76	77	☐

ACP % RC
50-133
61-130
46-130

Laboratory Control Sample

Date of Extraction: 12/3/2019 6:17
Date of Analysis: 12/3/2019 8:02
Dup Date of Analysis: 12/3/2019 8:22
Laboratory Sample #: MN1203191
LCS Qualifiers: None

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
1,1-Dichloroethene	10.0	8.78	7.88	88	79	11	55-130	20	☐
Benzene	10.0	10.6	9.88	106	99	7	70-133	20	☐
Trichloroethene	10.0	12.8	12.1	128	121	6	70-134	20	☐
Toluene	10.0	11.2	10.3	112	103	8	57-134	20	☐
Chlorobenzene	10.0	12.4	11.7	124	117	6	70-131	20	☐

QA/QC Report
for
Volatile Organic Compounds (EPA 8260B)
Reporting units: ppb

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Date of Extraction: 12/4/2019 7:32
Date of Analysis: 12/4/2019 10:07
Dup Date of Analysis: 12/4/2019 10:28
Laboratory Sample #: 24756-024
MS/MSD Qualifiers: None
Reference #: GTK 24756

Analyte	R1	SPC CONC	MS	MSD	%MS	%MSD	RPD	ACP %MS	ACP RPD	Qual
1,1-Dichloroethene	0.00	10.0	7.21	7.09	72	71	2	54-130	20	☐
Benzene	0.00	10.0	9.15	8.87	91	89	3	70-133	20	☐
Trichloroethene	0.00	10.0	10.8	10.6	108	106	2	70-135	20	☐
Toluene	0.00	10.0	9.50	9.42	95	94	1	57-135	20	☐
Chlorobenzene	0.00	10.0	10.9	10.5	109	105	4	70-132	20	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	MS	MSD	Qual
Dibromofluoromethane	63	65	☐
Toluene-d8	71	72	☐
4-Bromofluorobenzene	72	73	☐

LCS	LCSD	Qual
63	64	☐
72	71	☐
73	73	☐

ACP % RC
50-133
61-130
46-130

Laboratory Control Sample

Date of Extraction: 12/4/2019 7:32
Date of Analysis: 12/4/2019 9:24
Dup Date of Analysis: 12/4/2019 9:45
Laboratory Sample #: MN1204191
LCS Qualifiers: None

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
1,1-Dichloroethene	10.0	8.12	8.63	81	86	6	55-130	20	☐
Benzene	10.0	10.1	9.75	101	98	4	70-133	20	☐
Trichloroethene	10.0	11.6	12.1	116	121	4	70-134	20	☐
Toluene	10.0	10.5	10.1	105	101	4	57-134	20	☐
Chlorobenzene	10.0	11.5	11.7	115	117	2	70-131	20	☐

QA/QC Report
for
Metals

Reference #: GTK 24756 Reporting units: ppm

Matrix Spike (MS) / Matrix Spike Duplicate (MSD) **6010B/7471A**

Laboratory Sample #: AZ12181-001 **Date of Extraction:** 12/02/19 09:00

Analyte	MS Date of Analysis	MSD Date of Analysis	R1	SPC CONC	MS	MSD	% MS	% MSD	RPD	ACP %MS	ACP RPD	Qualifiers
Antimony	12/03/19 20:45	12/03/19 20:49	0.00	20.0	19.6	19.5	98	98	1	75-125	20	--
Arsenic	12/03/19 20:45	12/03/19 20:49	0.00	20.0	19.4	19.4	97	97	0	75-125	20	--
Barium	12/03/19 20:45	12/03/19 20:49	0.00	20.0	19.7	20.0	99	100	2	75-125	20	--
Beryllium	12/03/19 20:45	12/03/19 20:49	0.00	20.0	18.4	18.6	92	93	1	75-125	20	--
Cadmium	12/03/19 20:45	12/03/19 20:49	0.00	20.0	19.5	19.6	98	98	1	75-125	20	--
Chromium	12/03/19 20:45	12/03/19 20:49	0.00	20.0	19.8	20.1	99	101	2	75-125	20	--
Cobalt	12/03/19 20:45	12/03/19 20:49	0.00	20.0	21.2	21.3	106	106	0	75-125	20	--
Copper	12/03/19 20:45	12/03/19 20:49	0.00	20.0	20.6	20.8	103	104	1	75-125	20	--
Lead	12/03/19 20:45	12/03/19 20:49	0.00	20.0	19.9	20.2	99	101	1	75-125	20	--
Molybdenum	12/03/19 20:45	12/03/19 20:49	0.00	20.0	18.5	18.6	93	93	1	75-125	20	--
Nickel	12/03/19 20:45	12/03/19 20:49	0.00	20.0	21.0	21.0	105	105	0	75-125	20	--
Selenium	12/03/19 20:45	12/03/19 20:49	0.00	20.0	17.8	18.9	89	94	6	75-125	20	--
Silver	12/03/19 20:45	12/03/19 20:49	0.00	20.0	18.2	18.5	91	93	2	75-125	20	--
Thallium	12/03/19 20:45	12/03/19 20:49	0.00	20.0	20.1	20.0	101	100	0	75-125	20	--
Vanadium	12/03/19 20:45	12/03/19 20:49	0.00	20.0	18.3	18.4	91	92	1	75-125	20	--
Zinc	12/03/19 20:45	12/03/19 20:49	0.00	20.0	21.8	23.0	109	115	5	75-125	20	--

Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD) **6010B/7471A**

Laboratory Sample #: IR1202191 **Date of Extraction:** 12/02/19 09:00

Analyte	LCS Date of Analysis	LCSD Date of Analysis		SPC CONC	LCS	LCSD	% LCS	% LCSD	RPD	ACP %LCS	ACP RPD	Qualifiers
Antimony	12/03/19 20:25	12/03/19 20:29	--	20.0	19.5	19.9	98	99	2	80-120	20	--
Arsenic	12/03/19 20:25	12/03/19 20:29	--	20.0	19.4	19.3	97	96	1	80-120	20	--
Barium	12/03/19 20:25	12/03/19 20:29	--	20.0	19.3	19.6	96	98	2	80-120	20	--
Beryllium	12/03/19 20:25	12/03/19 20:29	--	20.0	18.6	18.7	93	94	1	80-120	20	--
Cadmium	12/03/19 20:25	12/03/19 20:29	--	20.0	19.9	19.8	99	99	1	80-120	20	--
Chromium	12/03/19 20:25	12/03/19 20:29	--	20.0	19.9	20.2	99	101	1	80-120	20	--
Cobalt	12/03/19 20:25	12/03/19 20:29	--	20.0	21.4	21.3	107	106	0	80-120	20	--
Copper	12/03/19 20:25	12/03/19 20:29	--	20.0	21.1	21.3	106	106	1	80-120	20	--
Lead	12/03/19 20:25	12/03/19 20:29	--	20.0	20.4	20.5	102	102	0	80-120	20	--
Molybdenum	12/03/19 20:25	12/03/19 20:29	--	20.0	18.8	18.7	94	94	1	80-120	20	--
Nickel	12/03/19 20:25	12/03/19 20:29	--	20.0	21.2	21.0	106	105	1	80-120	20	--
Selenium	12/03/19 20:25	12/03/19 20:29	--	20.0	17.6	18.1	88	91	3	80-120	20	--
Silver	12/03/19 20:25	12/03/19 20:29	--	20.0	18.9	19.1	94	96	1	80-120	20	--
Thallium	12/03/19 20:25	12/03/19 20:29	--	20.0	20.5	20.4	102	102	0	80-120	20	--
Vanadium	12/03/19 20:25	12/03/19 20:29	--	20.0	18.5	18.6	93	93	1	80-120	20	--
Zinc	12/03/19 20:25	12/03/19 20:29	--	20.0	21.5	21.3	108	106	1	80-120	20	--

QA/QC Report
for
Metals

Reference #: GTK 24756 Reporting units: ppm

Matrix Spike (MS) / Matrix Spike Duplicate (MSD) **6010B/7471A**

Laboratory Sample #: 24756-001 **Date of Extraction:** 12/03/19 17:05

Analyte	MS Date of Analysis	MSD Date of Analysis	R1	SPC CONC	MS	MSD	% MS	% MSD	RPD	ACP %MS	ACP RPD	Qualifiers
Antimony	12/06/19 16:31	12/06/19 16:35	0.00	20.0	7.02	7.46	35	37	6	75-125	20	M2,
Arsenic	12/06/19 16:31	12/06/19 16:35	0.00	20.0	21.4	21.3	107	106	0	75-125	20	--
Barium	12/06/19 16:31	12/06/19 16:35	41.0	20.0	59.9	58.1	95	85	3	75-125	20	--
Beryllium	12/06/19 16:31	12/06/19 16:35	0.00	20.0	20.0	19.6	100	98	2	75-125	20	--
Cadmium	12/06/19 16:31	12/06/19 16:35	0.00	20.0	19.9	19.7	99	99	1	75-125	20	--
Chromium	12/06/19 16:31	12/06/19 16:35	12.0	20.0	32.3	31.5	101	98	3	75-125	20	--
Cobalt	12/06/19 16:31	12/06/19 16:35	3.40	20.0	24.2	23.6	104	101	3	75-125	20	--
Copper	12/06/19 16:31	12/06/19 16:35	14.0	20.0	36.1	34.8	110	104	4	75-125	20	--
Lead	12/06/19 16:31	12/06/19 16:35	14.0	20.0	34.1	31.9	100	89	7	75-125	20	--
Molybdenum	12/06/19 16:31	12/06/19 16:35	0.00	20.0	17.6	17.7	88	89	1	75-125	20	--
Nickel	12/06/19 16:31	12/06/19 16:35	5.40	20.0	26.8	26.4	107	105	2	75-125	20	--
Selenium	12/06/19 16:31	12/06/19 16:35	0.00	20.0	19.8	17.5	99	88	12	75-125	20	--
Silver	12/06/19 16:31	12/06/19 16:35	0.00	20.0	18.7	18.6	94	93	1	75-125	20	--
Thallium	12/06/19 16:31	12/06/19 16:35	0.00	20.0	19.6	19.3	98	96	2	75-125	20	--
Vanadium	12/06/19 16:31	12/06/19 16:35	22.0	20.0	42.5	40.7	102	94	4	75-125	20	--
Zinc	12/06/19 16:31	12/06/19 16:35	120	20.0	134	117	70	0	14	75-125	20	M3,

Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD) **6010B/7471A**

Laboratory Sample #: JQ1203191 **Date of Extraction:** 12/03/19 17:05

Analyte	LCS Date of Analysis	LCSD Date of Analysis		SPC CONC	LCS	LCSD	% LCS	% LCSD	RPD	ACP %LCS	ACP RPD	Qualifiers
Antimony	12/06/19 16:18	12/06/19 16:22	--	20.0	22.7	23.1	114	116	2	80-120	20	--
Arsenic	12/06/19 16:18	12/06/19 16:22	--	20.0	20.3	20.8	101	104	2	80-120	20	--
Barium	12/06/19 16:18	12/06/19 16:22	--	20.0	20.3	21.2	101	106	4	80-120	20	--
Beryllium	12/06/19 16:18	12/06/19 16:22	--	20.0	20.0	20.0	100	100	0	80-120	20	--
Cadmium	12/06/19 16:18	12/06/19 16:22	--	20.0	20.4	21.0	102	105	3	80-120	20	--
Chromium	12/06/19 16:18	12/06/19 16:22	--	20.0	20.8	21.3	104	106	2	80-120	20	--
Cobalt	12/06/19 16:18	12/06/19 16:22	--	20.0	21.8	22.3	109	111	2	80-120	20	--
Copper	12/06/19 16:18	12/06/19 16:22	--	20.0	22.2	22.7	111	114	2	80-120	20	--
Lead	12/06/19 16:18	12/06/19 16:22	--	20.0	20.5	20.8	102	104	1	80-120	20	--
Molybdenum	12/06/19 16:18	12/06/19 16:22	--	20.0	19.4	19.8	97	99	2	80-120	20	--
Nickel	12/06/19 16:18	12/06/19 16:22	--	20.0	22.0	22.6	110	113	3	80-120	20	--
Selenium	12/06/19 16:18	12/06/19 16:22	--	20.0	18.6	19.5	93	98	5	80-120	20	--
Silver	12/06/19 16:18	12/06/19 16:22	--	20.0	19.9	20.3	99	101	2	80-120	20	--
Thallium	12/06/19 16:18	12/06/19 16:22	--	20.0	20.1	20.4	101	102	1	80-120	20	--
Vanadium	12/06/19 16:18	12/06/19 16:22	--	20.0	19.7	20.1	99	101	2	80-120	20	--
Zinc	12/06/19 16:18	12/06/19 16:22	--	20.0	21.7	22.2	109	111	2	80-120	20	--

QA/QC Report
for
Metals

Reference #: GTK 24756 Reporting units: ppm

Matrix Spike (MS) / Matrix Spike Duplicate (MSD) **6010B/7471A**

Laboratory Sample #: 24768-001 **Date of Extraction:** 12/03/19 17:05

Analyte	MS Date of Analysis	MSD Date of Analysis	R1	SPC CONC	MS	MSD	% MS	% MSD	RPD	ACP %MS	ACP RPD	Qualifiers
Antimony	12/06/19 18:12	12/06/19 18:15	0.00	20.0	4.13	3.78	21	19	9	75-125	20	M2,
Arsenic	12/06/19 18:12	12/06/19 18:15	3.00	20.0	21.9	22.5	94	98	3	75-125	20	--
Barium	12/06/19 18:12	12/06/19 18:15	140	20.0	151	149	55	45	1	75-125	20	M3,
Beryllium	12/06/19 18:12	12/06/19 18:15	0.00	20.0	20.5	20.1	102	101	2	75-125	20	--
Cadmium	12/06/19 18:12	12/06/19 18:15	0.740	20.0	19.8	19.8	95	95	0	75-125	20	--
Chromium	12/06/19 18:12	12/06/19 18:15	15.0	20.0	35.1	35.3	100	101	1	75-125	20	--
Cobalt	12/06/19 18:12	12/06/19 18:15	6.80	20.0	26.6	26.2	99	97	2	75-125	20	--
Copper	12/06/19 18:12	12/06/19 18:15	9.60	20.0	30.1	29.9	102	101	1	75-125	20	--
Lead	12/06/19 18:12	12/06/19 18:15	5.40	20.0	24.7	24.2	97	94	2	75-125	20	--
Molybdenum	12/06/19 18:12	12/06/19 18:15	0.00	20.0	16.8	16.8	84	84	0	75-125	20	--
Nickel	12/06/19 18:12	12/06/19 18:15	9.20	20.0	29.7	29.2	103	100	2	75-125	20	--
Selenium	12/06/19 18:12	12/06/19 18:15	0.00	20.0	18.2	17.4	91	87	4	75-125	20	--
Silver	12/06/19 18:12	12/06/19 18:15	0.00	10.0	8.80	8.86	88	89	1	75-125	20	--
Thallium	12/06/19 18:12	12/06/19 18:15	0.00	20.0	14.8	15.1	74	76	2	75-125	20	M2,
Vanadium	12/06/19 18:12	12/06/19 18:15	38.0	20.0	58.9	57.7	105	99	2	75-125	20	--
Zinc	12/06/19 18:12	12/06/19 18:15	48.0	20.0	65.6	67.0	88	95	2	75-125	20	--

Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD) **6010B/7471A**

Laboratory Sample #: JQ1203192 **Date of Extraction:** 12/03/19 17:05

Analyte	LCS Date of Analysis	LCSD Date of Analysis		SPC CONC	LCS	LCSD	% LCS	% LCSD	RPD	ACP %LCS	ACP RPD	Qualifiers
Antimony	12/06/19 18:05	12/06/19 18:07	--	20.0	22.4	22.8	112	114	2	80-120	20	--
Arsenic	12/06/19 18:05	12/06/19 18:07	--	20.0	20.7	21.1	104	106	2	80-120	20	--
Barium	12/06/19 18:05	12/06/19 18:07	--	20.0	19.9	20.1	99	101	1	80-120	20	--
Beryllium	12/06/19 18:05	12/06/19 18:07	--	20.0	20.2	20.6	101	103	2	80-120	20	--
Cadmium	12/06/19 18:05	12/06/19 18:07	--	20.0	20.9	21.1	104	106	1	80-120	20	--
Chromium	12/06/19 18:05	12/06/19 18:07	--	20.0	20.6	21.0	103	105	2	80-120	20	--
Cobalt	12/06/19 18:05	12/06/19 18:07	--	20.0	22.2	22.4	111	112	1	80-120	20	--
Copper	12/06/19 18:05	12/06/19 18:07	--	20.0	21.9	22.3	109	111	2	80-120	20	--
Lead	12/06/19 18:05	12/06/19 18:07	--	20.0	20.9	21.0	104	105	0	80-120	20	--
Molybdenum	12/06/19 18:05	12/06/19 18:07	--	20.0	19.7	19.8	99	99	1	80-120	20	--
Nickel	12/06/19 18:05	12/06/19 18:07	--	20.0	22.6	22.8	113	114	1	80-120	20	--
Selenium	12/06/19 18:05	12/06/19 18:07	--	20.0	18.5	20.8	93	104	12	80-120	20	--
Silver	12/06/19 18:05	12/06/19 18:07	--	10.0	9.55	9.73	96	97	2	80-120	20	--
Thallium	12/06/19 18:05	12/06/19 18:07	--	20.0	20.3	20.3	101	101	0	80-120	20	--
Vanadium	12/06/19 18:05	12/06/19 18:07	--	20.0	19.4	19.8	97	99	2	80-120	20	--
Zinc	12/06/19 18:05	12/06/19 18:07	--	20.0	22.3	22.3	111	111	0	80-120	20	--

Matrix Spike (MS) / Matrix Spike Duplicate (MSD) **6010B/7471A**

Laboratory Sample #: 24756-021 **Date of Extraction:** 12/03/19 15:01

Analyte	MS Date of Analysis	MSD Date of Analysis	R1	SPC CONC	MS	MSD	% MS	% MSD	RPD	ACP %MS	ACP RPD	Qualifiers
Mercury	12/04/19 15:38	12/04/19 15:44	0.00	1.00	0.899	0.899	90	90	0	80-120	20	--

QA/QC Report
for
Metals

Reference #: GTK 24756 Reporting units: ppm

Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD) **6010B/7471A**

Laboratory Sample #: SR1203193 **Date of Extraction:** 12/03/19 15:01

Analyte	LCS Date of Analysis	LCSD Date of Analysis		SPC CONC	LCS	LCSD	% LCS	% LCSD	RPD	ACP %LCS	ACP RPD	Qualifiers
Mercury	12/04/19 15:33	12/04/19 15:35	--	1.00	0.879	0.915	88	92	4	80-120	20	--

Matrix Spike (MS) / Matrix Spike Duplicate (MSD) **6010B/7471A**

Laboratory Sample #: 24756-001 **Date of Extraction:** 12/03/19 15:01

Analyte	MS Date of Analysis	MSD Date of Analysis	R1	SPC CONC	MS	MSD	% MS	% MSD	RPD	ACP %MS	ACP RPD	Qualifiers
Mercury	12/04/19 14:48	12/04/19 14:50	0.00	1.00	1.00	0.963	100	96	4	80-120	20	--

Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD) **6010B/7471A**

Laboratory Sample #: SR1203192 **Date of Extraction:** 12/03/19 15:01

Analyte	LCS Date of Analysis	LCSD Date of Analysis		SPC CONC	LCS	LCSD	% LCS	% LCSD	RPD	ACP %LCS	ACP RPD	Qualifiers
Mercury	12/04/19 14:43	12/04/19 14:44	--	1.00	0.892	0.907	89	91	2	80-120	20	--

Data Qualifier Definitions

Qualifier

D2 = Sample required dilution due to high concentration of target analyte.

M2 = Matrix spike recovery was low, the associated blank spike recovery was acceptable.

24756-001	6010B	Antimony	MS/MSD
24768-001	6010B	Antimony	MS/MSD
24768-001	6010B	Thallium	MS

M3 = The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The associated blank spike recovery was acceptable.

24756-001	6010B	Zinc	MS/MSD
24768-001	6010B	Barium	MS/MSD

N1 = See case narrative.

24756-026	8081A	Sample run at 13x dilution on 12/06/19 @ 14:36 for 4,4'-DDE @ 4.4'-DDD

R2 = RPD/RSD exceeded the laboratory acceptance limit.

24756-008	8082	PCB-1016	MS/MSD

S5 = Surrogate recovery was below laboratory acceptance limits.

S8 = The analysis of the sample required a dilution such that the surrogate recovery calculation does not provide any useful information. The associated blank spike recovery was acceptable.

Definition of terms:

R1	Result of unspiked laboratory sample used for matrix spike determination.
SP CONC (or Spike Conc.)	Spike concentration added to sample or blank
MS	Matrix Spike sample result
MSD	Matrix Spike Duplicate sample result
%MS	Percent recovery of MS: {(MS-R1) / SP CONC} x100
%MSD	Percent recovery of MSD: {(MSD-R1) / SP CONC} x 100
RPD (for MS/MSD)	Relative Percent Difference: {(MS-MSD) / (MS+MSD)} x 100 x 2
LCS	Laboratory Control Sample result
LCSD	Laboratory Control Sample Duplicate result
%LCS	Percent recovery of LCS: {(LCS) / SP CONC} x100
%LCSD	Percent recovery of LCSD: {(LCSD) / SP CONC} x 100
RPD (for LCS/LCSD)	Relative Percent Difference: {(LCS-LCSD) / (LCS+LCSD)} x 100 x 2
ACP %LCS	Acceptable percent recovery range for Laboratory Control Samples.
ACP %MS	Acceptable percent recovery range for Matrix Spike samples
ACP RPD	Acceptable Relative Percent Difference
D	Detectable, result must be greater than zero
Qual	A checked box indicates a data qualifier was utilized and/or required for this analyte see attached explanation.
ND	Analyte Not Detected

Analysis Request and Chain of Custody Record

Lab Job No: 24756
Page 1 of 3

ORANGE COAST ANALYTICAL, INC. www.ocalab.com

3002 Dow, Suite 532
Tustin, CA 92780
(714) 832-0064 Fax (714) 832-0067

4620 E. Elwood, Suite 4
Phoenix, AZ 85040
(480) 736-0960 Fax (480) 736-0970

REQUIRED TURN AROUND TIME: Standard: _____
72 Hours: _____ 48 Hours: _____ 24 Hours: _____

CUSTOMER INFORMATION		PROJECT INFORMATION	
COMPANY:	GeoTek, Inc.	PROJECT NAME:	Fox Point Farms
SEND REPORT TO:	Chris Livesey	NUMBER:	3611-SD
EMAIL:	clivesey@geotekusa.com	ADDRESS:	1150 Quail Gardens Dr, Encinitas
ADDRESS:	1384 Poinsettia Ave. Suite "A"		
	Vista, CA 92081	P.O. #	
PHONE:	949-338-9233 FAX:	SAMPLED BY:	CDL/SE

ANALYSIS REQUEST / PRESERVATIVE: PCB's | TPH | VOC's | CAM 17 | Title 22 Metals | PEST-HERB

	SAMPLE ID	NO. OF CONTAINERS	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER TYPE	REMARKS/PRECAUTIONS
1	GB-1-0	1	11-27-19	835	SS	8oz	
2	GB-1-2	1		840			
3	GB-1+5-0	1		845			
4	GB-1+5-2	1		850			
5	GB-2-0	1		855			
6	GB-2-2	1		900			
7	GB-3-0	1		905			
8	GB-3-2	1		910			
9	GB-4-0	1		915			
10	GB-4-1	1		920			
11	GB-5-0	1		925			
12	GB-5-2	1		930			
13	GB-6-0	1		935			
14	GB-6-2	1		940			

Total No. of Samples: 14 Method of Shipment: Courier

Preservative: 1 = Ice 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By: Saed Ali Ebrahim	Date/Time: 16:50 11/27/19	Received For Lab By: OCAC	Date/Time: 11-27-19 1650

Sample Matrix:
GW - Groundwater
WW - Wastewater
SW - Stormwater
DW - Drinking Water
W - Water
SS - Soil/Solid
OT - Other

IR#1
4.4-0.2=

Sample Integrity:
Intact: ✓ On Ice: (Yes) / No @ 4.2°C

By signing above, client acknowledges responsibility for payment of all services requested on this chain of custody form and any additional services provided in support of this project. Payment is due within 30 days of invoice date unless otherwise agreed upon, in writing, with Orange Coast Analytical, Inc. All samples remain the property of the client. A disposal fee may be imposed if client fails to pickup sample.

Analysis Request and Chain of Custody Record

Lab Job No: 24756
Page 1 of 1

ORANGE COAST ANALYTICAL, INC. www.ocalab.com

3002 Dow, Suite 532
Tustin, CA 92780
(714) 832-0064 Fax (714) 832-0067

4620 E. Elwood, Suite 4
Phoenix, AZ 85040
(480) 736-0960 Fax (480) 736-0970

REQUIRED TURN AROUND TIME: Standard: _____
72 Hours: _____ 48 Hours: 48 24 Hours: _____

CUSTOMER INFORMATION		PROJECT INFORMATION	
COMPANY:	GeoTek, Inc.	PROJECT NAME:	Fox Point Farms
SEND REPORT TO:	Chris Livesey	NUMBER:	3611-SD
EMAIL:	clivesey@geotekusa.com	ADDRESS:	1150 Quail Gardens Dr, Encinitas
ADDRESS:	1384 Poinsettia Ave. Suite "A"		
	Vista, CA 92081	P.O. #	
PHONE:	949-338-9233 FAX:	SAMPLED BY:	CDL/SE

ANALYSIS REQUEST / PRESERVATIVE

	SAMPLE ID	NO. OF CONTAINERS	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER TYPE	TPH	VOC	CMTS	PCBs in FISH TISSUE	REMARKS/PRECAUTIONS
15	GB-7-0	1	11-27-19	945	SS	Eoz	X	X	X	X	
16	GB-7-2	1		950			X	X	X	X	
17	GB-8-0	1		955			X	X	X	X	
18	GB-8-1	1		1000			X	X	X	X	
19	GB-9-0	1		1100			X	X	X	X	
20	GB-9-2	1		1105			X	X	X	X	
21	GB-10-0	1	1110	1110			X	X	X	X	
22	GB-10-2	1		1120			X	X	X	X	
23	GB-11-0	1		1130			X	X	X	X	
24	GB-11-2	1		1140			X	X	X	X	
25	GB-12-0	1		1200			X	X	X	X	
26	GB-12-2	1		1210			X	X	X	X	
27	GB-13-0	1		1230			X	X	X	X	
28	GB-13-1	1		1240			X	X	X	X	

Total No. of Samples: 14 Method of Shipment: Courier

Preservative: 1 = Ice 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received For Lab By: OCAA	Date/Time:
Saeid-Ebrahimi	11/27/19 1650		11-27-19 1650

Sample Matrix:
GW - Groundwater
WW - Wastewater
SW - Stormwater
DW - Drinking Water
W - Water
SS - Soil/Solid
OT - Other IR#1

Sample Integrity: 4.4-0.2=
Intact: ✓ On Ice: Yes / No @ 4.2°C

By signing above, client acknowledges responsibility for payment of all services requested on this chain of custody form and any additional services provided in support of this project. Payment is due within 30 days of invoice date unless otherwise agreed upon, in writing, with Orange Coast Analytical, Inc. All samples remain the property of the client. A disposal fee may be imposed if client fails to pickup sample.

Analysis Request and Chain of Custody Record

Lab Job No: 24756
Page 1 of 1

ORANGE COAST ANALYTICAL, INC. www.ocalab.com

3002 Dow, Suite 532
Tustin, CA 92780
(714) 832-0064 Fax (714) 832-0067

4620 E. Elwood, Suite 4
Phoenix, AZ 85040
(480) 736-0960 Fax (480) 736-0970

REQUIRED TURN AROUND TIME: Standard: _____
72 Hours: _____ 48 Hours: _____ 24 Hours: _____

CUSTOMER INFORMATION		PROJECT INFORMATION	
COMPANY:	GeoTek, Inc.	PROJECT NAME:	Fox Point Farms
SEND REPORT TO:	Chris Livesey	NUMBER:	3611-SD
EMAIL:	clivesey@geotekusa.com	ADDRESS:	1150 Quail Gardens Dr, Encinitas
ADDRESS:	1384 Poinsettia Ave. Suite "A"		
	Vista, CA 92081	P.O. #	
PHONE:	949-338-9233 FAX:	SAMPLED BY:	CDL/SE

	SAMPLE ID	NO. OF CONTAINERS	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER TYPE	ANALYSIS REQUEST / PRESERVATIVE: TPH	VOCs	CAM 17	Coliform (Total & E. coli)	REMARKS/PRECAUTIONS
29	GB-14-0	1	11/27/19	1250	SS	Brs	X	X	X	X	
30	GB-14-2	1	↓	13:00	↓	↓	X	X	X	X	

Total No. of Samples: 2 Method of Shipment: CLIENT DRIVE Preservative: 1 = Ice 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By: Sajid Elbashir	Date/Time: 11/27/19 16:50	Received For Lab By: OCAEA	Date/Time: 11-27-19 1650

Sample Matrix:
GW - Groundwater
WW - Wastewater
SW - Stormwater
DW - Drinking Water
W - Water
SS - Soil/Solid
OT - Other IR#1

Sample Integrity: ✓ Intact: ✓ On Ice: (Yes) No @ 4.4-0.2= 4.2°c

By signing above, client acknowledges responsibility for payment of all services requested on this chain of custody form and any additional services provided in support of this project. Payment is due within 30 days of invoice date unless otherwise agreed upon, in writing, with Orange Coast Analytical, Inc. All samples remain the property of the client. A disposal fee may be imposed if client fails to pickup sample.

Sample Receipt Report

Laboratory Reference: **GTK 24756** Logged in by: CT

Received:	11/27/19 16:50	Company Name:	GeoTek, Inc.
Method of Shipment:	Hand Delivered	Project Manager:	Mr. Chris Livesey
Shipping Container:	Cooler	Project Name:	Fox Point Farms
# Shipping Containers:	1	Project #:	3611-SD

Sample Quantity
30 Soil

Chain of Custody		Complete ☑	Incomplete ☐	None ☐
Samples On Ice		Yes, Wet ☑	Yes, Blue ☐	No ☐
Observed Temp. (°C):	4.4	Thermometer ID: IR#1	Adjusted Temp.:	4.4+(-0.2)=4.2
Shipping Intact		Yes ☑	N/A ☐	No ☐
Shipping Custody Seals Intact		Yes ☐	N/A ☑	No ☐
Samples Intact		Yes ☑		No ☐
Sample Custody Seals Intact		Yes ☐	N/A ☑	No ☐
Custody Seals Signed & Dated		Yes ☐	N/A ☑	No ☐
Proper Test Containers		Yes ☑		No ☐
Proper Test Preservations		Yes ☑		No ☐
Samples Within Hold Times		Yes ☑		No ☐
VOAs Have Zero Headspace		Yes ☐	N/A ☑	No ☐
Sample Labels		Complete ☑	Incomplete ☐	None ☐
Sample Information Matches COC		Yes ☑	N/A ☐	No ☐

Notes

Client Notified _____ By _____ On _____

APPENDIX C

PROJECT TEAM QUALIFICATIONS

J. MICHAEL BATTEN, CAC, CEM, REPA

Principal/Environmental Services Manager

Education

BS in Geology, California State University, Fresno 1988

Registrations

- Certified Asbestos Consultant (CA #95-1721)
- Licensed Asbestos Abatement Consultant (NV #IJPM0655)
- Certified Environmental Manager (NV #1782)
- Asbestos Professional Inspector (IL #100-11092)
- Registered Environmental Property Assessor (#113162))
- Certified Lead Inspector Assessor (CA #4358)
- Certified Lead Inspector (EPA #LBP-I-1162326-1)
- Certified Lead Risk Assessor (EPA #LBP-R-1162326-1)

Certifications

- AHERA Certified Asbestos Building Inspector, Management Planner, Project Designer, & Contractor/Supervisor
- EPA Accredited Lead-based Paint Inspector & Risk Assessor
- OSHA HAZWOPER certified worker & supervisor
- OSHA Construction Safety & Health (10-Hour)

Affiliations

- American Society of Testing and Materials
- National Registry of Environmental Professionals

Professional Experience

Mr. Batten has over 30 years of environmental experience, throughout which he has conducted and managed numerous environmental investigations, assessments, and remediations. He has prepared several NEPA assessments, USEPA EIS, and CEQA EIR reports. In addition, Mr. Batten has extensive experience in conducting asbestos and lead-based paint surveys and preparing management plans, including remediation design, for asbestos and lead present in buildings.

Project Experience

- **Phase I Environmental Site Assessments:** Mr. Batten has conducted more than 2,000 Phase I Environmental Site Assessments in 27 states, including Brownfield studies under USEPA grants.
- **Phase II Environmental Site Assessments:** Mr. Batten has conducted more than 150 Phase II Environmental Assessments, including Brownfield studies under USEPA grants.
- **Site Characterizations and Remediations:** Mr. Batten has experience conducting numerous site characterizations and remediations, including obtaining regulatory closure.
- **NEPA Studies:** Mr. Batten has conducted more than 200 NEPA studies, including Environmental Assessments, Environmental Impact Reports/Environmental Impact Studies, in eight states. The agencies involved include USEPA, FCC, BLM, National Park Service, and California EPA.
- **Asbestos Services:** Mr. Batten has conducted over 600 asbestos surveys in several states. He has also prepared numerous Asbestos Management Plans, prepared design plans, and monitored numerous abatement projects.
- **Lead-Based Paint Services:** Mr. Batten has conducted numerous Lead-Based Paint surveys.
- **Landfills**: Mr. Batten has conducted investigations and overseen remediations on landfills in Fresno, California and Henderson, Nevada.
- **Other Services:** Mr. Batten has been called upon to conduct less usual services on occasion, including mold consultation and investigation, radon studies, vapor intrusion studies, and indoor air quality studies.

J. MICHAEL BATTEN, continued…

Professional History

Environmental Services Manager. GeoTek, Inc., 2001 to present.

Director of Environmental Services. ATC Associates, Inc., 1999 to 2001.

Director of Operations. Hygienetics Environmental Services, Inc., 1997 to 1999.

Project Manager. AllWest Environmental, Inc., 1996 to 1997.

Project Manager. Citadel Environmental Services, Inc., 2/1996 to 9/1996.

Project Manager. Boelter Environmental consultants, 3/1995 to 9/1995.

Senior Staff Geologist. Converse Consultants, 1992 to 1995.

Staff Geologist. Converse Environmental West, 1991 to 1992.

Project Geologist. Krazan and Associates, 1990 to 1991.

Environmental Technician. Krazan and Associates, 1989 to 1990.

National Registry of Environmental Professionals

For

Environmental Certifications

This is to Certify that

Michael J Batten

having sucessfully demonstrated to the Academic Board of this organization the required level of knowledge and ability, is here by awarded the distinction of

Registered Environmental Property Assessor

together with all rights, benefits and privileges attached thereto and that the name and title of the aforementioned registrant is today placed upon the register of the organization.

Given under our hands on this 15 day of June, 2013.

Richard A Young

Executive Director

NREP

113162

Registrant Number

This Certificate is the property of the National Registry of Environmental Professionals and must, upon demand, be returned.

United States Environmental Protection Agency

This is to certify that



J M Batten

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Inspector

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires March 14, 2022

LBP-I-I162326-2

Certification #

December 08, 2018

Issued On

Adrienne Priselac, Manager, Toxics Office

Land Division

United States Environmental Protection Agency

This is to certify that



J M Batten

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires March 14, 2022

LBP-R-I162326-2
Certification #

December 08, 2018
Issued On

Adrienne Priselac, Manager, Toxics Office
Land Division

STATE OF CALIFORNIA GAVIN NEWSOM, *Governor*

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety and Health
Asbestos Certification & Training Unit
2424 Arden Way, Suite 495
Sacramento, CA 95825-2417
(916) 574-2993 Office (916) 483-0572 Fax
http://www.dir.ca.gov/dosh/asbestos.html acru@dir.ca.gov

505011721C 109 115

August 23, 2019

J. Michael Batten
8240 Edmond Street
Las Vegas NV 89139

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address or email with any changes in your contact/mailing information within 15 days of the change.

Sincerely,

Jeff Ferrell
Senior Safety Engineer

Attachment: Certification Card

cc: File



Renewal – Card Attached (Revised 01/10/2019)

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
 **Michael Batten**	Lead Inspector/Assessor	LRC-00002629	11/17/2020

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD.

IDPH
ILLINOIS DEPARTMENT OF PUBLIC HEALTH

525-535 West Jefferson Street • Springfield, Illinois 62761-0001 • www.dph.illinois.gov

MICHAEL BATTEN
8240 EDMOND STREET
LAS VEGAS, NV 89139

4/5/2018

ASBESTOS PROFESSIONAL LICENSE ID NUMBER: 11092

Enclosed is your Asbestos Professional License. Please note the expiration date on the card and in the image depicted below.

COPY OF THE ASBESTOS PROFESSIONAL LICENSE

Front of License

IDPH
ILLINOIS DEPARTMENT OF PUBLIC HEALTH

ASBESTOS PROFESSIONAL LICENSE

ID NUMBER	ISSUED	EXPIRES
100 - 11092	4/5/2018	05/15/2019

MICHAEL BATTEN
8240 EDMOND STREET
LAS VEGAS, NV 89139

Environmental Health



Back of License

ENDORSEMENTS	TC EXPIRES
INSPECTOR	3/20/2019

Alteration of this license shall result in legal action
This license issued under authority of the State of Illinois Department of Public Health
This license is valid only when accompanied by a valid training course certificate.

If you have any questions or need further assistance, contact the Asbestos Program at (217)782-3517 or fax (217)785-5897.

Our WEB address is: dph.illinois.gov/topics-services/environmental-health-protection/asbestos
EMAIL Address: dph.asbestos@illinois.gov

State of Nevada

Department of Conservation and Natural Resources

Division of Environmental Protection

This is to certify that

Michael J Batten

having given satisfactory evidence of the necessary qualifications as required by the Nevada Revised Statute 459.400 to 459.600, inclusive, and Nevada Administrative Code 459.970 to 459.9729, inclusive, has been granted certification as a

Environmental Manager

in the State of Nevada

In testimony whereof, witness the signature of the Administrator and the Seal of the State of Nevada.

1782

Certification Number

Greg Lovato, Administrator

8/31/2021

Expiration Date

State of Nevada Department of Business & Industry

Industrial Relations (DIR)

STATE OF NEVADA
DEPARTMENT OF BUSINESS AND INDUSTRY
DIVISION OF INDUSTRIAL RELATIONS
Occupational Safety and Health Administration
Asbestos Control Program

Certifies That J. Michael Batten
Geotek Insite Inc.
is Licensed As Asbestos Abatement Consultant

License No. IJPM-655 Expiration Date 03/07/2020

Signature Of Licensee

M & C Environmental Training

Asbestos Inspector
Refresher Training Course

Michael Batten

Has successfully completed the Asbestos Inspector Refresher course approved by the California Division of Occupational Safety and Health for purposes of certification required by Title 8, Article 2.7, Chapter 3.2, Section 341.16 and the accreditation required under the Toxic Substances Control Act, Title II. Conducted by M&C Environmental Training Inc., 1619 Beverly Place, Berkeley, California. Tel. # (510) 525 – 1388

Course Approval Number: CA-003-06

Location:	Oakland, California	Expiration: March 7, 2020
Dates:	March 7, 2019	
Director of Training: John McGinnis		

Certificate Number 45383 IR

M & C Environmental Training

Asbestos Management Planner
Refresher Training Course

Michael Batten

Has successfully completed the Asbestos Management Planner Refresher course approved by the California Division of Occupational Safety and Health for purposes of certification required by Title 8, Article 2.7, Chapter 3.2, Section 341.16 and the accreditation required under the Toxic Substances Control Act, Title II. Conducted by M&C Environmental Training Inc., 1619 Beverly Place, Berkeley, California. Tel. # (510) 525 – 1388

Course Approval Number: CA-003-08

Location:	Oakland, California	Expiration: March 7, 2020
Dates:	March 7, 2019	
Director of Training: John McGinnis		

Certificate Number 45396 PR

M & C Environmental Training

Asbestos Contractor/Supervisor
Refresher Training Course

J. Michael Batten

Has successfully completed the Asbestos Contractor/Supervisor Refresher course approved by the California Division of Occupational Safety and Health for purposes of certification required by Title 8, Article 2.7, Chapter 3.2, Section 341.16 and the accreditation required under the Toxic Substances Control Act, Title II. Conducted by M&C Environmental Training Inc., 1619 Beverly Place, Berkeley, California. Tel. # (510) 525 – 1388

Course Approval Number: CA-003-04

Location:	Oakland, California	Expiration: September 13, 2020
Dates:	September 13, 2019	
Director of Training: John McGinnis		

Certificate Number 46376 SR

M & C Environmental Training

Asbestos Project Designer
Refresher Training Course

J. Michael Batten

Has successfully completed the Asbestos Project Designer Refresher course approved by the California Division of Occupational Safety and Health for purposes of certification required by Title 8, Article 2.7, Chapter 3.2, Section 341.16 and the accreditation required under the Toxic Substances Control Act, Title II. Conducted by M&C Environmental Training Inc., 1619 Beverly Place, Berkeley, California. Tel. # (510) 525 – 1388

Course Approval Number: CA-003-10

Location:	Oakland, California	Expiration: September 11, 2020
Dates:	September 11, 2019	
Director of Training: John McGinnis		

Certificate Number 46347 DR

This is to Certify that

Michael Batten

Has Satisfactorily Completed Training in Accordance with Applicable Rules and Regulations

Asbestos Building Inspector Refresher

Completed: 3/19/2019 *Expires: 3/19/2020*

Certificate: BIR1903190998

2019

Occupational Training & Supply, Inc.
7233 Adams Street ♦ Willowbrook, IL 60527 ♦ (630) 655-3900

OSHA 002340551

U.S. Department of Labor
Occupational Safety and Health Administration

Michael Batten

has successfully completed a 10-hour Occupational Safety and Health Training Course in

Construction Safety & Health

Kenner Costen
(Trainer)

12/12/09
(Date)

Christopher D. Livesey, PG

Project Geologist

Areas of Expertise

Geotechnical Field Investigations, Fault Hazard Studies, Downtown San Diego Infill Development, Grading and Earthwork Construction, Design Build Construction, Industry Standard of Care, Hillside, Liquefaction, Seismic Hazard, Landslide Repair. Phase I & II tasks

Education

Bachelor of Science in Geology, Cal State University, Long Beach

Registrations

Registered Geologist, GEO 9584

Certifications

OSHA 40-Hr HAZWOPER Training
OSHA 8-Hour Refresher
ACI-Field Tech Grade I
First Aid/CPR

Professional Affiliations

San Diego Association of Geologist
-President circa 2018

San Diego Geological Society
-Retired Board Member

Professional Experience

Mr. Livesey has been involved with numerous residential, commercial, and public works, projects within the southern California area. From single lot custom homes to master-planned communities to urban high-rise infill development. Many private and public works projects have been successfully completed across southern and central California. Mr. Livesey has gained experience from proposing services, to the laboratory, to site geotechnical and fault hazard evaluations, to construction observation and testing, to project management, which provides a long case history throughout development of a project. Projects include fault evaluations, various commercial and residential site developments, These projects have generally included preliminary geotechnical investigations, slope stability evaluations, review and design recommendations, street improvements construction and testing services, design build construction projects, landslide repair and project management.

Representative Project Experience

Project experience has included residential and commercial developments, for various land developers including City Ventures, Streetlights Residential, DR Horton, Chelsea Investments, Holland Partners Group, Level 3 Construction, Kettler Leweck Engineering, Integral Communities, HNTB, etc. Mr. Livesey has also completed geotechnical investigations and performed project management for numerous residential tracts and commercial facilities all across Southern California.

Professional History

Project Geologist - GeoTek, Inc., Vista, 2018 to present

Project Geologist - Leighton Consulting, Inc., San Diego, 2013 to 2018

Geologist - Leighton Consulting, Inc., Irvine, 2004 to 2013

Engineering Technician - GeoSoils, Inc., Santa Ana, 2002 to 2004

APPENDIX K-2 SOIL MANAGEMENT PLAN

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GeoTek, Inc.
1384 Poinsettia Avenue, Suite A Vista, CA 92081-8505
(760) 599-0509 Office (760) 599-0593 Fax www.geotekusa.com

June 2, 2020
Project No. 3611-SD

Nolen Communities, LLC
1680 North Coast Highway, Unit 51
Encinitas, California 92024

Attention: Mr. Sean Kilkenny

Subject: Soil Management Plan
Fox Point Farms
1150 Quail Gardens Drive
City of Encinitas, San Diego County, California

References: See Page 4

Dear Mr. Kilkenny:

As requested, GeoTek, Inc. (GeoTek) has prepared this Soil Management Plan (SMP) for the excavation of TPH impacted soil at the subject site.

Based on a review of a *Fox Point Farms Concept Plan A* prepared by Schmidt Design Group, dated October 8, 2019, we understand that the project structure type varies from two-story bungalows to three-story multi-family residential buildings, a recreational area and commercial space.

Previous work at the site by this firm includes a *Phase I Environmental Site Assessment* (GeoTek, 2019a), a *Geotechnical Investigation* (GeoTek, 2019b), a *Limited Additional Soil Sampling* (GeoTek, 2020a) and a *Report of Supplemental Sampling Results* (GeoTek, 2020b).

A subsurface evaluation was performed and a report was prepared presenting our findings, conclusions, and recommendations (GeoTek, 2020a). Fifteen (15) locations ranging at depths between the surface and two (2) feet below surface were selected across the Site. The samples were analyzed for total petroleum hydrocarbons (TPH), organo-chlorinated pesticides (OCPs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, arsenic and selectively for polychlorinated biphenyls (PCBs).

The soil sampling revealed evidence of subsurface contamination with heavy oils resulting from a leaking trash compactor at the Site (GeoTek, 2020a). Based on results from GB-1

(surface sample), TPH in the diesel range (diesel range organics [DROs]) and mid-range organics (MROs) were found to be 24,000 milligrams per kilogram (mg/Kg) and 44,000 mg/Kg, respectively. However, the sample taken at a depth of two (2) feet (GB-2) and five (5) feet to the north (directly downgradient) at the surface and two (2) feet below (GB-1+5-0 and GB-1+5-2) showed DROs and MROs below 100 mg/Kg (Figures 1A and 1B).

Samples GB-2 and GB-3 were also found to have TPH above the reporting limit. Sample GB-2 was found to have MROs at the surface sample to contain 340mg/kg and the 2 foot deep sample was found to contain 140 mg/kg (Figure 2). GB-3 was found to have MROs at the surface of 240 mg/kg and no detection at a depth of 2 feet (Figure 3).

Based on the assessments performed by this firm (GeoTek, 2019a, 2020a and 2020b), the impacted soil related to heavy oils were recommended and it is our continued recommendation that the heavy oil impacted site soils be removed and properly disposed of offsite in covered leak free containers. The estimated quantity of TPH impacted soil is approximately six (6) to eight (8) cubic yards of soil. Defining limits of the excavation will be determined by a competent person from GeoTek and preliminarily based on visual observations and a PID. Confirmation samples should be performed along the excavation sides at mid-height and bottom-central to confirm that the impacted soil has been mitigated.

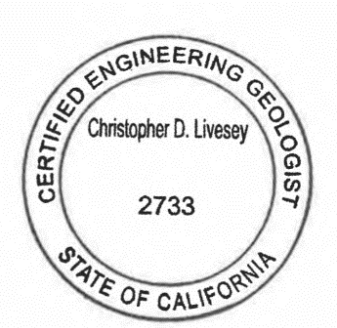
Although the area of the TPH impacted soils is relatively small and located within isolated locations of the site, site controls for the project will include fencing of the entire site prior to demolition, earthwork activities, etc. Signs instructing visitors to check in at the appropriate location on the project will be posted. Dust control will include the application of water while grading, excavating, etc. and limited vehicle speeds to 5-miles per hour or less on unpaved portions of the site. Additional dust control measures may be identified and implemented during the construction, especially if dry and windy conditions persist during the periods of earthwork.

Monitoring of the earthwork construction will be performed by competent personnel from our firm. If any unforeseen contamination is discovered via odor, vision, dust monitoring devices, etc. the work area will be ceased, and soil samples will be collected for possible contamination.

A completion report summarizing the site grading activities and verification sampling results will be prepared by GeoTek.

We appreciate this opportunity to be of service. If you have any questions, or if we can be of further service, please contact us at (760) 599-0509.

Respectfully Submitted,
GEOTEK, INC.



Christopher D. Livesey
CEG 2733, Exp. 5/31/21
Project Geologist

Anna M. Scott
Project Geologist

Edward H. LaMont
CEG 1892, Exp. 7/31/20
Principal Geologist



ENCLOSURES

Figure 1 – TPH Impacted Area (Trash Compactor)
Figure 2 – TPH Impacted Area (GB-2)
Figure 3 – TPH Impacted Area (GB-3)

REFERENCES

GeoTek, Inc., 2019a, "Phase I Environmental Site Assessment, Fox Point Farms Project, 1150 Quail Gardens Drive, Encinitas, San Diego County, California 92082" Project No. 3611-SD, dated November 18.

_____, 2019b, "Preliminary Geotechnical Evaluation, Fox Point Farms, 1150 Quail Gardens Drive, Encinitas, California," Project No. 3611-SD, dated November 27.

_____, 2020a, "Limited Additional Soil Sampling, Fox Point Farms Project, 1150 Quail Gardens Drive, Encinitas, San Diego County, California 92082" Project No. 3611-SD, dated January 28.

_____, 2020b, "Report of Supplemental Sampling Results, Fox Point Farms Project, 1150 Quail Gardens Drive, Encinitas, San Diego County, California 92082" Project No. 3611-SD, dated May 20.

San Francisco Bay Regional Water Quality Control Board, Environmental Screening Levels, dated January 25, 2019





Nolen Communities, LLC.
Fox Point Farms Project
1150 Quail Gardens Drive,
Encinitas, California

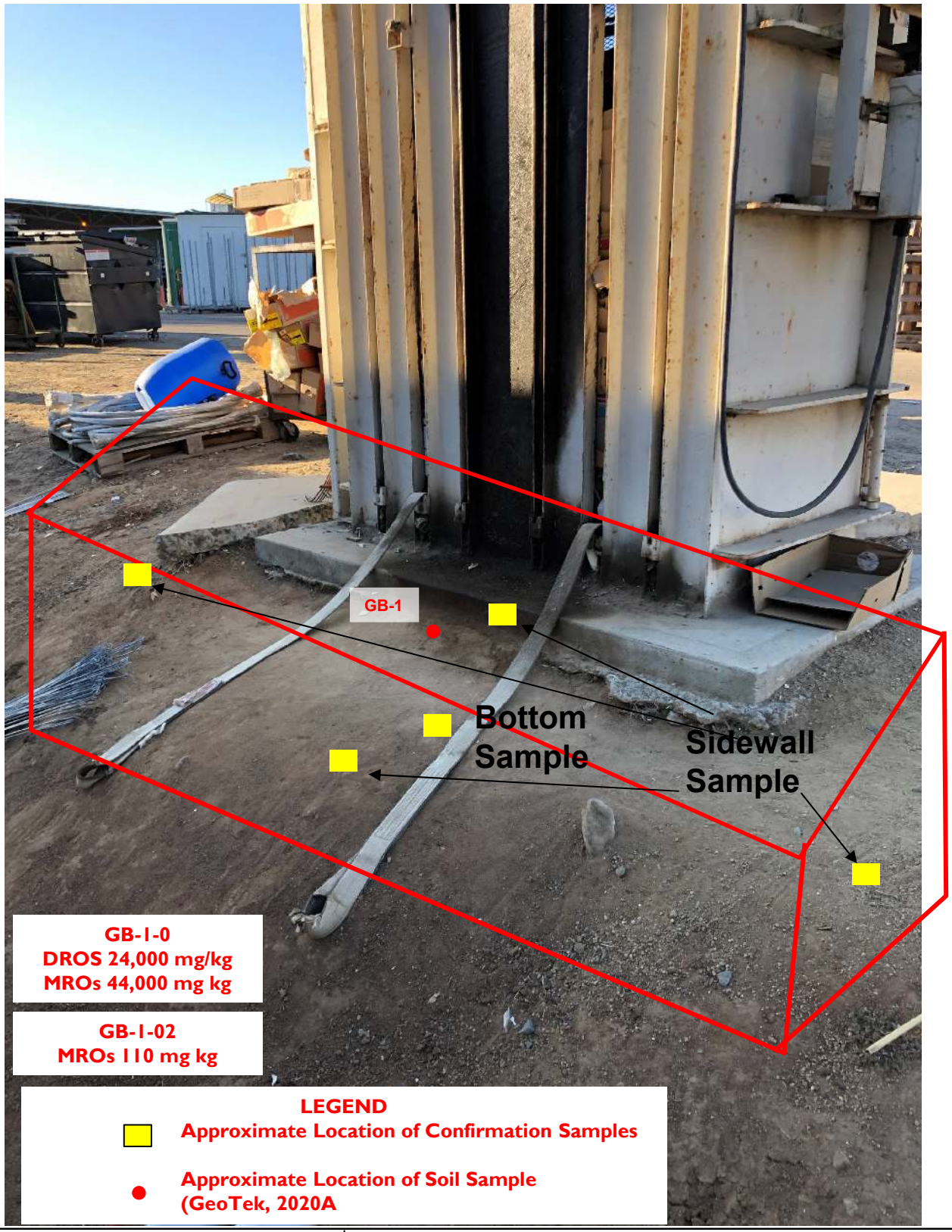
Project No. 3611-SD

NORTH

Figure 1A

TPH Impacted Area (Trash Compactor)

GEOTEK



Nolen Communities, LLC.
Fox Point Farms Project
1150 Quail Gardens Drive,
Encinitas, California

Project No. 3611-SD

NORTH

Figure 1B

TPH Impacted Area (Trash Compactor)

GEOTEK



LEGEND

Approximate Location of Confirmation Samples

Approximate Location of Soil Sample (GeoTek, 2020A



Nolen Communities, LLC.
Fox Point Farms Project
1150 Quail Gardens Drive,
Encinitas, California

Project No. 3611-SD

NORTH

Figure 2

TPH Impacted Area (GB-2)

GEOTEK



LEGEND

Approximate Location of Confirmation Samples

Approximate Location of Soil Sample (GeoTek, 2020A



Nolen Communities, LLC.
Fox Point Farms Project
1150 Quail Gardens Drive,
Encinitas, California

Project No. 3611-SD

NORTH

Figure 3

TPH Impacted Area (GB-3)

GEOTEK

APPENDIX K-3 REPORT OF SUPPLEMENTAL SAMPLING RESULTS

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REPORT OF SUPPLEMENTAL SAMPLING RESULTS

FOX POINT FARMS PROJECT
1150 QUAIL GARDENS DRIVE
ENCINITAS, SAN DIEGO COUNTY, CALIFORNIA 92082

May 26, 2020

Project No.: 3611-SD

Prepared For:

Nolen Communities, LLC
1680 N. Coast Highway 101, Suite No. 51
Encinitas, California 92024

GEOTEK

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APPENDIX A: FIGURES
APPENDIX B: LABORATORY REPORTS
APPENDIX C: PROJECT TEAM QUALIFICATIONS

GeoTek, Inc.
1384 Poinsettia Avenue, Suite A Vista, CA 92081-8505
(760) 599-0509 Office (760) 599-0593 Fax www.geotekusa.com

1.0 EXECUTIVE SUMMARY

GeoTek, Inc. (GeoTek) has prepared this report in response to comments received from the San Diego County Department of Environmental Health ("SD DEH") with respect to its prior report (Limited Additional Soil Sampling) dated January 28, 2020 which was prepared for the Fox Point Farms project located at 1150 Quail Gardens Drive, Encinitas, California (the "Site"). Specifically, SD DEH had requested additional soil sampling for the Site.

Our services were conducted in substantial conformance with ASTM Standard E 1903-11, and currently recognized industry standards. Any additions or deletions from our scope of services are discussed in the appropriate sections of this assessment.

GEOTEK conducted additional soil sampling at the Site on May 5, 2020. An additional eighteen hand auger boring locations, ranging at depths between the existing surface and two (2) feet below the existing surface, were selected across the Site. The additional boring locations were chosen with the assistance of Mr. Ewan Moffett, of SD DEH. Soil samples were obtained utilizing a hand auger and submitted to a state certified laboratory for analysis.

The samples were analyzed for organo-chlorinated pesticides (OCPs) and arsenic.

Analysis of the soil samples detected measurable quantities of the OCP constituent DDD, DDE, DDT, Dieldrin, Endosulfan I, Endosulfan II, Endosulfan Sulfate, Heptachlor and Toxaphene in 19 of the 36 soil samples, all below the environmental screening levels (ESL)for residential soils, as determined by the San Francisco Bay Regional Water Quality Control Board ESL (January 25, 2019).

Detectable quantities of the heavy metal arsenic were detected in the soil samples collected, all in concentrations below the ESL for residential soils, as determined by the San Francisco Bay Regional Water Quality Control Board ESL (January 25, 2019).

This executive summary does not contain all the information that is found in the full report. The report should be read in its entirety to obtain a more complete understanding of the information provided and to aid in any decisions made or actions taken based on this information.

2.0 INTRODUCTION

GeoTek, Inc. (GeoTek) has prepared this report in response to comments received from the San Diego County Department of Environmental Health ("SD DEH") with respect to its prior report (Limited Additional Soil Sampling) dated January 28, 2020 which was prepared for the Fox Point Farms project located at 1150 Quail Gardens Drive, Encinitas, California (the "Site"). Specifically, SD DEH had requested additional soil sampling for the Site.

2.1 PURPOSE

The purpose of this report was to further identify and evaluate suspected and actual environmental conditions involving the Site as requested by SD DEH.

2.2 SCOPE OF WORK

GEOTEK conducted the evaluation in substantial accordance with ASTM Standard E 1903-11 and currently recognized industry standards. Generally, the GEOTEK scope of services consisted of the following:

1. Coordination of the laboratories to complete the proposed scope of services.

2. Advancement of an additional eighteen borings at the Site for near surface soil sampling utilizing a hand auger device to collect samples. One (1) soil sample at the surface and one sample at a depth of 1 and 2 feet from each boring was submitted to the laboratory for analysis.

3. Analysis of soil samples by a state certified laboratory for organo-chlorinated pesticides (OCPs) and arsenic.

4. Preparation of this report presenting our findings, including applicable data, drawings, and photographs.

2.3 SIGNIFICANT ASSUMPTIONS

Specific assumptions by GEOTEK for this assessment include:

- GEOTEK had permission to access the Site grounds;

- The client has provided GEOTEK with available geotechnical or environmental reports for the Site;

- The client has provided GEOTEK with known current or historic uses of hazardous materials at the Site, or with other specialized knowledge of the environmental history of the Site and surrounding area.

2.4 LIMITATIONS AND EXCEPTIONS

GEOTEK prepared this report in substantial accordance with ASTM E 1903-11, and as authorized by Nolen Communities, LLC. This report is intended for the use of Nolen Communities, LLC, their successor and assignees. The contents should not be relied upon by any party other than the aforementioned without the express written consent of GEOTEK.

The findings, conclusions, and recommendations made in this report are based on the information that was made available to GEOTEK, in most instances from public records. The opinions and conclusions expressed herein are based on information obtained during our assessment and on our experience and current standards of technical practice. GEOTEK makes no other warranties, either express or implied, concerning the completeness of the data furnished to us. GEOTEK cannot be responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time our assessment was undertaken. GEOTEK is not responsible, nor liable for work, testing or recommendations performed or provided by others. This document is not and should not be construed as a warranty or guarantee about the presence or absence of environmental hazards or contaminants, which may affect the subject site. Facts, conditions, and acceptable risk factors change with time; accordingly, this report should be viewed within this context.

Specific limitations to the scope of ASTM E 1903-11 due to contract limitations, availability of resources, and/or encountered Site conditions are discussed in the appropriate sections of this report.

2.5 SPECIAL TERMS AND CONDITIONS

This assessment report is presented as fulfilling the standard requirements of most financial institutions, governmental regulatory agencies, ASTM, and generally accepted industry standards and practices.

2.6 RELIANCE

This assessment has been prepared for the exclusive use, and may be relied upon by, Nolen Communities, LLC, its successors, and assignees. Third party reliance letters may be issued upon request and upon the payment of the, then current, fee for such letters. All third parties relying on this report, by such reliance, agree to be bound by the General Conditions and Limitations agreed to by Nolen Communities, LLC. No reliance by any party is permitted without such agreement, regardless of the content of the reliance letter itself.

3.0 BACKGROUND

Phase I Environmental Site Assessment (GeoTek, 2019)

During June 2018, GEOTEK prepared a Phase I Environmental Site Assessment for the Site (GEOTEK, 2018). Findings from that work and subsequent interviews indicate the Site has been an active botanical nursery since approximately 1970. The Phase I Environmental Site Assessment revealed evidence of a recognized environmental condition and an environmental concern in connection with the subject Site.

A trash compactor on a concrete pad located in the northern portion of the Site was leaking during our site visit, as evident by staining on the equipment and surrounding soil. GeoTek recommended sampling and testing of this area for impacted soil surrounding the pad. As an alternative GeoTek recommended the impacted soils around the concrete pad can be excavated and disposed to a hazardous facility.

The Site is an active botanical nursery. Environmental impacts related to herbicides, pesticides, and fertilizer are considered to be a likely contaminant impacting the Site. Housekeeping practices were found to be less than optimal, further indicating potential for mishandling of these materials. GeoTek recommended a combination of random and focused field sampling and laboratory testing program is recommended to identify or dismiss concerns related to past and current agricultural and botanical production at the Site.

Limited Additional Soil Sampling (GeoTek, 2020)

GEOTEK conducted limited soil sampling at the Site on November 27, 2019. Fifteen (15) locations ranging at depths between the surface and two (2) feet below surface were selected across the Site. Soil samples were obtained utilizing a hand auger and submitted to a state certified laboratory for analysis.

The samples were analyzed for total petroleum hydrocarbons (TPH), organo-chlorinated pesticides (OCPs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and selectively for polychlorinated biphenyls (PCBs).

This Limited Additional Soil Sampling has revealed evidence of subsurface contamination with heavy oils resulting from the leaking trash compactor at the Site. Based on results from GB-1 (surface sample), TPH in the diesel range (diesel range organics [DROs]) and mid-range organics (MROs) were found to be 24,000milligrams per kilogram (mg/Kg) and 44,000 mg/Kg, respectively. However, the sample taken at a depth of two (2) feet (GB-2) and five (5) feet to the north (directly downgradient) at the surface and two (2) feet below (GB-1+5-0 and GB-1+5-2) showed DROs and MROs below 100 mg/Kg. Samples GB-2 and GB-3 also show TPH above the reporting limit. Therefore, the impacted soil related to heavy oils observed is estimated to be six (6) to eight (8) cubic yards of soil. The impacted soil should be excavated and properly disposed of offsite. Confirmation samples should be performed along the excavation sides and bottom to confirm that the impacted soil has been mitigated.

During our investigation, two nursery buildings randomly selected for sampling were not sampled due to an active application of the pesticide spray being applied. Although sampling was not performed within these two buildings, sample results from other buildings indicate the conditions are consistent throughout the nursery buildings. In addition, a portion of the site is to be dedicated as agricultural use and a portion of the site, although may appear to be a greenhouse, is utilized as a flower grouping and distribution facility.

4.0 SUMMARY OF ACTIVITIES

GeoTek conducted additional soil sampling at the Site on May 2, 2020.

Our field sampling plan included utilizing a hand auger to obtain surface samples and at depths ranging between one and two feet below surface. Sampling locations were selected and performed within the active botanical nurseries and within the vicinity of two pesticide mixing areas (refer to Figure 2 for sample locations).

A total of 18 borings (GB-15 through GB-32) were performed and a total of 53 soil samples were obtained from the site. Ten borings and 30 soil samples were collected within the active botanical nurseries. Eight (8) borings and 23 soil samples (refusal was encountered at one foot in boring GB-25) were collected at each of the two pesticide mixing areas. Four borings were performed at each of the two mixing areas (one boring on each side of the area). Samples were collected utilizing a hand auger, collected in 8-ounce glass jars and

placed into a precooled cooler. The samples were pack on ice and submitted under Chain-of-Custody to a state certified laboratory for analysis.

5.0 DISCUSSION OF RESULTS

The shallow samples (i.e. 0 feet and 1 feet) were analyzed for organo-chlorinated pesticides (OCPs) and arsenic. The laboratory report is included in Appendix B.

Analysis of the soil samples detected measurable quantities of the OCP constituent DDD, DDE, DDT, Dieldrin, Endosulfan I, Endosulfan II, Endosulfan Sulfate, Heptachlor and Toxaphene in 19 of the 36 soil samples. The applicable results of the OCP laboratory analysis are summarized in the following tables:

TABLE I
OCP SUMMARY ANALYTICAL RESULTS

Sample	4,4'-DDD (ug/kg)	4,4'-DDE (ug/kg)	4,4'-DDT (ug/kg)
GB-16 @ 0'	ND (<10)	7.3	ND (<10)
GB-17 @ 0'	ND (<10)	38	20
GB-18 @ 1'	ND (<10)	43	ND (<10)
GB-20 @ 0'	ND (<10)	20	12
GB-21 @ 0'	ND (<10)	16	20
GB-22 @ 0'	ND (<10)	20	18
GB-26 @ 0'	ND (<10)	17	ND (<10)
GB-26 @ 1'	13	29	ND (<10)
GB-27 @ 0'	ND (<10)	27	ND (<10)
GB-27 @ 1'	ND (<10)	51	24
GB-28 @ 1'	19	70	41
GB-29 @ 1'	ND (<10)	5.0	ND (<10)
GB-31 @ 0'	ND (<10)	7.0	ND (<10)
GB-32 @ 0'	ND (<10)	11	14
GB-32 @ 1'	ND (<10)	63	21
Screening Level	**2700[1]**	**1800[1]**	**1900[1]**

ug/kg = micrograms per kilogram
1 = San Francisco Bay Regional Water Quality Control Board Environmental Screening Level (ESL) for residential soil, July 25, 2019

TABLE II
OCP SUMMARY ANALYTICAL RESULTS

Sample	Dieldrin (ug/kg)	Endosulfan I (ug/kg)	Endosulfan II (ug/kg)
GB-16 @ 0'	ND (<2.0)	12	21
GB-17 @ 0'	ND (<2.0)	ND (<10)	5.6
GB-22 @ 0'	5.1	ND (<10)	ND (<5.0)
GB-23 @ 0'	ND (<2.0)	ND (<10)	15
GB-23 @ 1'	ND (<2.0)	12	6.6
GB-24 @ 1'	ND (<2.0)	12	ND (<5.0)
GB-26 @ 0'	4.0	15	ND (<5.0)
GB-27 @ 0'	12	ND (<10)	ND (<5.0)
GB-31 @ 0'	5.5	51	53
GB-32 @ 0'	ND (2.0)	ND (<10)	ND (<5.0)
Screening Level	**37[1]**	**420,000[1]**	**420,000[1]**

ug/kg = micrograms per kilogram
1 = San Francisco Bay Regional Water Quality Control Board Environmental Screening Level (ESL) for residential soil, July 25, 2019

TABLE III
OCP SUMMARY ANALYTICAL RESULTS

Sample	Endosulfan Sulfate (ug/kg)	Heptachlor (ug/kg)	Toxaphene (ug/kg)
GB-15 @ 0'	10	ND (<2.0)	ND (<40)
GB-16 @ 0'	34	ND (<2.0)	ND (<40)
GB-17 @ 0'	ND (<10)	ND (<2.0)	86
GB-18 @ 1'	ND (<10)	ND (<2.0)	130
GB-27 @ 0'	ND (<10)	ND (<2.0)	66
GB-27 @ 1'	ND (<10)	ND (2.0)	120
GB-31 @ 0'	ND (<10)	3.9	ND (<40)
GB-32 @ 0'	11	ND (<2.0)	120
GB-32 @ 1'	ND (<10)	ND (<2.0)	170
Screening Level	**420,000[1]**	**120[1]**	**510[1]**

ug/kg = micrograms per kilogram
1 = San Francisco Bay Regional Water Quality Control Board Environmental Screening Level (ESL) for residential soil, July 25, 2019

Detectable quantities of the heavy metal arsenic were detected in the soil samples collected. The applicable results of the heavy metals laboratory analysis are summarized in the following table:

TABLE IV
ARSENIC SUMMARY ANALYTICAL RESULTS

Sample	Arsenic (mg/kg)
GB-15 @ 0'	ND (<2.0)
GB-15 @ 1'	ND (<2.0)
GB-16 @ 0'	ND (<2.0)
GB-16 @ 1'	3.9
GB-17 @ 0'	ND (<2.0)
GB-17 @ 1'	ND (<2.0)
GB-18 @ 0'	2.5
GB-18 @ 1'	ND (<2.0)
GB-19 @ 0'	3.4
GB-19 @ 1'	ND (<2.0)
GB-20 @ 0'	ND (<2.0)
GB-20 @ 1'	ND (<2.0)
GB-21 @ 0'	ND (<2.0)
GB-21 @ 1'	ND (<2.0)
GB-22 @ 0'	ND (2.0)
GB-22 @ 1'	2.7
GB-23 @ 0	ND (2.0)
GB-23 @ 1'	2.3
GB-24 @ 0'	2.6
GB-24 @ 1'	ND (<2.0)
GB-25 @ 0'	2.4
GB-25 @ 1'	ND (<2.0)
GB-26 @ 0'	ND (<2.0)
GB-26 @ 1'	ND (<2.0)
GB-27 @ 0'	ND (<2.0)
GB-27 @ 1'	ND (<2.0)
GB-28 @ 0'	3.0
GB-28 @ 1'	ND (<2.0)
GB-29 @ 0'	2.7
GB-29 @ 1'	2.1
GB-30 @ 0'	3.6
GB-30 @ 1'	4.6
GB-31 @ 0'	ND (<2.0)
GB-31 @ 1'	ND (<2.0)
GB-32 @ 0'	ND (<2.0)
GB-32 @ 1'	ND (<2.0)
Screening Level	**67[1]**

mg/kg = milligrams per kilogram
1 = San Francisco Bay Regional Water Quality Control Board Environmental Screening Level (ESL) for residential soil, July 25, 2019

6.0 CONCLUSIONS AND RECOMMENDATIONS

The OCP constituents detected were all at concentrations below ESL for residential soils, established by the San Francisco Bay Regional Water Quality Control Board January 25, 2019).

The arsenic detections were also all at concentrations below the ESL for residential soils, established by the San Francisco Bay Regional Water Quality Control Board (January 25, 2019).

Based on our investigation, GEOTEK is of the opinion that additional investigation is not necessary at the Site with respect to the historical agricultural usage.

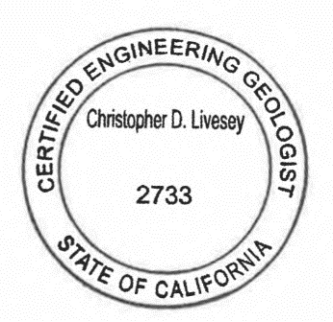
7.0 CERTIFICATIONS

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject Site. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR 312.

The qualifications of the Project Team are included in Appendix C.

We appreciate this opportunity to be of service. If you have any questions, or if we can be of further service, please contact us at (760) 599-0509.

Sincerely,
GEOTEK, INC.



Christopher D. Livesey
CEG 2733, Exp. 5/31/21
Project Geologist

Anna Scott
Project Manager

Edward H. LaMont
CEG 1892, Exp. 7/31/20
Principal Geologist



8.0 REFERENCES

GeoTek, Inc., 2019, "Phase I Environmental Site Assessment, Fox Point Farms Project, 1150 Quail Gardens Drive, Encinitas, San Diego County, California 92082" Project No. 3611-SD, dated November 18.

_____, 2020, "Limited Additional Soil Sampling, Fox Point Farms Project, 1150 Quail Gardens Drive, Encinitas, San Diego County, California 92082" Project No. 3611-SD, dated January 28.

San Francisco Bay Regional Water Quality Control Board, Environmental Screening Levels, dated January 25, 2019.

APPENDIX A

FIGURES



LEGEND

- GB-14 Approximate location of hand auger boring, +5 indicates Five Foot offset from Original boring
- GB-32 Approximate location of additional hand auger borings

Nolen Communities, LLC.
Fox Point Farms Project
1150 Quail Gardens Drive,
Encinitas, California

Project No. 3611-SD

NORTH

Figure 1
Previous and Additional Boring Locations
Google Earth
Dec. 2017

GEOTEK

APPENDIX B

LABORATORY REPORTS

Orange Coast Analytical, Inc.
3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067
4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (480) 736-0960 Fax (480) 736-0970

LABORATORY REPORT FORM

ORANGE COAST ANALYTICAL, INC.

3002 Dow Suite 532 Tustin, CA 92780

(714) 832-0064

Laboratory Certification (ELAP) No.: 2576
Expiration Date: 2021
Los Angeles County Sanitation District Lab ID# 10206

Laboratory Director's Name:

Mark Noorani

Client:	GeoTek, Inc.
Laboratory Reference:	GTK 25174
Project Name:	Fox Point Farms
Project Number:	3611-SD
Date Received:	5/5/2020
Date Reported:	5/14/2020
Chain of Custody Received:	☑
Analytical Method:	8081A, 6010B,

Mark Noorani, Laboratory Director

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Ms. Anna Scott
GeoTek, Inc.
1548 N. Maple St
Corona, CA, 92880

Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Case Narrative

Sample Receipt:

All samples on the Chain of Custody were received by OCA at 5ºC, on ice.

Holding Times:

All samples were analyzed within required holding times unless otherwise noted in the data qualifier section of the report.

Analytical Methods:

Sample analysis was performed following the analytical methods listed on the cover page.

Data Qualifiers:

Within this report, data qualifiers may have been assigned to clarify deviations in common laboratory procedures or any divergence from laboratory QA/QC criteria. If a data qualifier has been used, it will appear in the back of the report along with its description. All method QA/QC criteria have been met unless otherwise noted in the data qualifier section.

Definition of Terms:

The definitions of common terms and acronyms used in the report have been placed at the back of the report to assist data users.

Comments:

None

Ms. Anna Scott
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1548 N. Maple St
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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Client Sample Summary

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-15@0'	25174-001	5/5/2020	5/5/2020	Soil
GB-15@1'	25174-002	5/5/2020	5/5/2020	Soil
GB-15@2'	25174-003	5/5/2020	5/5/2020	Soil
GB-16@0'	25174-004	5/5/2020	5/5/2020	Soil
GB-16@1'	25174-005	5/5/2020	5/5/2020	Soil
GB-16@2'	25174-006	5/5/2020	5/5/2020	Soil
GB-17@0'	25174-007	5/5/2020	5/5/2020	Soil
GB-17@1'	25174-008	5/5/2020	5/5/2020	Soil
GB-17@2'	25174-009	5/5/2020	5/5/2020	Soil
GB-18@0'	25174-010	5/5/2020	5/5/2020	Soil
GB-18@1'	25174-011	5/5/2020	5/5/2020	Soil
GB-18@2'	25174-012	5/5/2020	5/5/2020	Soil
GB-19@0'	25174-013	5/5/2020	5/5/2020	Soil
GB-19@1'	25174-014	5/5/2020	5/5/2020	Soil
GB-19@2'	25174-015	5/5/2020	5/5/2020	Soil
GB-20@0'	25174-016	5/5/2020	5/5/2020	Soil
GB-20@1'	25174-017	5/5/2020	5/5/2020	Soil
GB-20@2'	25174-018	5/5/2020	5/5/2020	Soil
GB-21@0'	25174-019	5/5/2020	5/5/2020	Soil
GB-21@1'	25174-020	5/5/2020	5/5/2020	Soil
GB-21@2'	25174-021	5/5/2020	5/5/2020	Soil
GB-22@0'	25174-022	5/5/2020	5/5/2020	Soil
GB-22@1'	25174-023	5/5/2020	5/5/2020	Soil
GB-22@2'	25174-024	5/5/2020	5/5/2020	Soil
GB-23@0'	25174-025	5/5/2020	5/5/2020	Soil
GB-23@1'	25174-026	5/5/2020	5/5/2020	Soil
GB-23@2'	25174-027	5/5/2020	5/5/2020	Soil
GB-24@0'	25174-028	5/5/2020	5/5/2020	Soil
GB-24@1'	25174-029	5/5/2020	5/5/2020	Soil
GB-24@2'	25174-030	5/5/2020	5/5/2020	Soil
GB-25@0'	25174-031	5/5/2020	5/5/2020	Soil
GB-25@1'	25174-032	5/5/2020	5/5/2020	Soil
GB-26@0'	25174-033	5/5/2020	5/5/2020	Soil
GB-26@1'	25174-034	5/5/2020	5/5/2020	Soil
GB-26@2'	25174-035	5/5/2020	5/5/2020	Soil
GB-27@0'	25174-036	5/5/2020	5/5/2020	Soil
GB-27@1'	25174-037	5/5/2020	5/5/2020	Soil
GB-27@2'	25174-038	5/5/2020	5/5/2020	Soil

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Project Name: Fox Point Farms
Project #: 3611-SD

Client Sample Summary

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-28@0'	25174-039	5/5/2020	5/5/2020	Soil
GB-28@1'	25174-040	5/5/2020	5/5/2020	Soil
GB-28@2'	25174-041	5/5/2020	5/5/2020	Soil
GB-29@0'	25174-042	5/5/2020	5/5/2020	Soil
GB-29@1'	25174-043	5/5/2020	5/5/2020	Soil
GB-29@2'	25174-044	5/5/2020	5/5/2020	Soil
GB-30@0'	25174-045	5/5/2020	5/5/2020	Soil
GB-30@1'	25174-046	5/5/2020	5/5/2020	Soil
GB-30@2'	25174-047	5/5/2020	5/5/2020	Soil
GB-31@0'	25174-048	5/5/2020	5/5/2020	Soil
GB-31@1'	25174-049	5/5/2020	5/5/2020	Soil
GB-31@2'	25174-050	5/5/2020	5/5/2020	Soil
GB-32@0'	25174-051	5/5/2020	5/5/2020	Soil
GB-32@1'	25174-052	5/5/2020	5/5/2020	Soil
GB-32@2'	25174-053	5/5/2020	5/5/2020	Soil

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-15@0'	25174-001	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/7/2020 10:57	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	98

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

Ms. Anna Scott
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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-15@1'	25174-002	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/7/2020 11:12	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	93

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-16@0'	25174-004	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/7/2020 11:28	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	7.3
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	12
Endosulfan II	33213-65-9	21
Endosulfan sulfate	1031-07-8	34
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	85

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-16@1'	25174-005	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/7/2020 11:43	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	93

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-17@0'	25174-007	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/7/2020 11:58	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	38
4,4'-DDT	50-29-3	20
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	5.6
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	86

Surrogate:	% RC*
Decachlorobiphenyl	96

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-17@1'	25174-008	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/7/2020 12:13	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	94

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

Ms. Anna Scott
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1548 N. Maple St
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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-18@0'	25174-010	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/7/2020 12:29	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	96

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Corona, CA, 92880

Lab Reference #: GTK 25174
Project Name: Fox Point Farms
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Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-18@1'	25174-011	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/8/2020 7:34	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	43
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	130

Surrogate:	% RC*
Decachlorobiphenyl	101

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
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Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-19@0'	25174-013	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/8/2020 7:49	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	107

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-19@1'	25174-014	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/8/2020 8:05	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	99

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-20@0'	25174-016	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/8/2020 8:20	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	20
4,4'-DDT	50-29-3	12
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	98

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-20@1'	25174-017	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/8/2020 8:35	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	103

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

Ms. Anna Scott
GeoTek, Inc.
1548 N. Maple St
Corona, CA, 92880

Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-21@0'	25174-019	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/8/2020 8:50	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	16
4,4'-DDT	50-29-3	20
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	100

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

Ms. Anna Scott
GeoTek, Inc.
1548 N. Maple St
Corona, CA, 92880

Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-21@1'	25174-020	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/8/2020 9:06	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	96

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

Ms. Anna Scott
GeoTek, Inc.
1548 N. Maple St
Corona, CA, 92880

Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-22@0'	25174-022	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/8/2020 9:21	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	20
4,4'-DDT	50-29-3	18
Dieldrin	60-57-1	5.1
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	106

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: C8,

Ms. Anna Scott
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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-22@1'	25174-023	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/8/2020 9:36	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	101

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

Ms. Anna Scott
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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-23@0'	25174-025	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/8/2020 9:51	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	15
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	98

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

Ms. Anna Scott
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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-23@1'	25174-026	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/8/2020 10:06	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	12
Endosulfan II	33213-65-9	6.6
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	97

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

Ms. Anna Scott
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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-24@0'	25174-028	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/8/2020 10:22	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	80

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

Ms. Anna Scott
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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-24@1'	25174-029	5/5/2020 14:30	5/5/2020	5/6/2020 10:00	5/8/2020 10:37	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	12
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	136

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: S1,

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-25@0'	25174-031	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/11/2020 11:20	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	76

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

Ms. Anna Scott
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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-25@1'	25174-032	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/11/2020 11:36	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	49

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: S5,

Ms. Anna Scott
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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-26@0'	25174-033	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/11/2020 11:51	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	17
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	4.0
Endosulfan I	959-98-8	15
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	106

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

Ms. Anna Scott
GeoTek, Inc.
1548 N. Maple St
Corona, CA, 92880

Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-26@1'	25174-034	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/11/2020 12:06	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	13
4,4'-DDE	72-55-9	29
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	97

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

Ms. Anna Scott
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Corona, CA, 92880

Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-27@0'	25174-036	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/11/2020 12:21	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	27
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	12
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	66

Surrogate:	% RC*
Decachlorobiphenyl	91

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

Ms. Anna Scott
GeoTek, Inc.
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Corona, CA, 92880

Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-27@1'	25174-037	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/11/2020 12:37	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	51
4,4'-DDT	50-29-3	24
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	120

Surrogate:	% RC*
Decachlorobiphenyl	93

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

Ms. Anna Scott
GeoTek, Inc.
1548 N. Maple St
Corona, CA, 92880

Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-28@0'	25174-039	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/12/2020 10:42	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	91

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

Ms. Anna Scott
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Corona, CA, 92880

Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-28@1'	25174-040	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/11/2020 12:52	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	19
4,4'-DDE	72-55-9	70
4,4'-DDT	50-29-3	41
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	94

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: N1,

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-29@0'	25174-042	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/12/2020 10:57	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	89

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-29@1'	25174-043	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/12/2020 11:12	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	130

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-30@0'	25174-045	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/12/2020 11:28	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	91

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-30@1'	25174-046	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/11/2020 13:07	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	99

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-31@0'	25174-048	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/12/2020 11:43	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	7.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	5.5
Endosulfan I	959-98-8	51
Endosulfan II	33213-65-9	53
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	3.9
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	89

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: N1,

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-31@1'	25174-049	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/11/2020 13:22	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	100

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-32@0'	25174-051	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/11/2020 13:38	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	11
4,4'-DDT	50-29-3	14
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	11
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	120

Surrogate:	% RC*
Decachlorobiphenyl	97

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
GB-32@1'	25174-052	5/5/2020 14:30	5/5/2020	5/8/2020 9:30	5/12/2020 11:58	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	63
4,4'-DDT	50-29-3	21
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	170

Surrogate:	% RC*
Decachlorobiphenyl	95

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: N1,

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBAV0506201			5/6/2020 10:00	5/7/2020 9:41	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	102

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Organochlorine Pesticides (EPA 8081A)

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Date Extracted	Date Analyzed	Matrix
Method Blank	MBAV0508201			5/8/2020 9:30	5/8/2020 13:20	Soil

ANALYTE	CAS #	µg/kg
Aldrin	309-00-2	<2.0
alpha-BHC	319-84-6	<5.0
beta-BHC	319-85-7	<5.0
gamma-BHC (Lindane)	58-89-9	<5.0
delta-BHC	319-86-8	<10
Chlordane	57-74-9	<30
4,4'-DDD	72-54-8	<10
4,4'-DDE	72-55-9	<5.0
4,4'-DDT	50-29-3	<10
Dieldrin	60-57-1	<2.0
Endosulfan I	959-98-8	<10
Endosulfan II	33213-65-9	<5.0
Endosulfan sulfate	1031-07-8	<10
Endrin	72-20-8	<10
Endrin aldehyde	7421-93-4	<10
Endrin ketone	53494-70-5	<5.0
Heptachlor	76-44-8	<2.0
Heptachlor epoxide	1024-57-3	<5.0
Methoxychlor	72-43-5	<10
Toxaphene	8001-35-2	<40

Surrogate:	% RC*
Decachlorobiphenyl	101

* Acceptable Recovery: 53-134 %

Dilution Factor: 1

Data Qualifiers: None

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-15@0'	25174-001	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 12:32	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-15@1'	25174-002	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 12:38	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-16@0'	25174-004	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 12:44	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-16@1'	25174-005	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	3.9	mg/kg	05/08/20 14:00	05/13/20 12:46	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-17@0'	25174-007	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 12:47	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-17@1'	25174-008	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 12:49	--	1

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-18@0'	25174-010	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	2.5	mg/kg	05/08/20 14:00	05/13/20 12:51	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-18@1'	25174-011	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 12:53	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-19@0'	25174-013	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	3.4	mg/kg	05/08/20 14:00	05/13/20 12:55	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-19@1'	25174-014	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 12:56	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-20@0'	25174-016	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 12:58	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-20@1'	25174-017	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 13:00	--	1

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Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-21@0'	25174-019	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 13:06	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-21@1'	25174-020	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 13:07	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-22@0'	25174-022	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 13:09	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-22@1'	25174-023	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	2.7	mg/kg	05/08/20 14:00	05/13/20 13:11	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-23@0'	25174-025	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 13:13	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-23@1'	25174-026	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	2.3	mg/kg	05/08/20 14:00	05/13/20 13:15	--	1

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Ms. Anna Scott
GeoTek, Inc.
1548 N. Maple St
Corona, CA, 92880

Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-24@0'	25174-028	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	2.6	mg/kg	05/08/20 14:00	05/13/20 13:16	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-24@1'	25174-029	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 13:18	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-25@0'	25174-031	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	2.4	mg/kg	05/08/20 14:00	05/13/20 13:27	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-25@1'	25174-032	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 13:33	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-26@0'	25174-033	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 14:02	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-26@1'	25174-034	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 13:35	--	1

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GeoTek, Inc.
1548 N. Maple St
Corona, CA, 92880

Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-27@0'	25174-036	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 13:37	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-27@1'	25174-037	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 13:39	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-28@0'	25174-039	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	3.0	mg/kg	05/08/20 14:00	05/13/20 13:40	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-28@1'	25174-040	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 13:42	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-29@0'	25174-042	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	2.7	mg/kg	05/08/20 14:00	05/13/20 13:44	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-29@1'	25174-043	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	2.1	mg/kg	05/08/20 14:00	05/13/20 13:49	--	1

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Ms. Anna Scott
GeoTek, Inc.
1548 N. Maple St
Corona, CA, 92880

Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-30@0'	25174-045	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	3.6	mg/kg	05/08/20 14:00	05/13/20 13:51	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-30@1'	25174-046	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	4.6	mg/kg	05/08/20 14:00	05/13/20 13:53	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-31@0'	25174-048	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 13:55	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-31@1'	25174-049	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 13:57	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-32@0'	25174-051	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 13:59	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
GB-32@1'	25174-052	5/5/2020 14:30	5/5/2020	Soil

ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 14:00	--	1

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Ms. Anna Scott
GeoTek, Inc.
1548 N. Maple St
Corona, CA, 92880

Lab Reference #: GTK 25174
Project Name: Fox Point Farms
Project #: 3611-SD

Metals

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
Method Blank				Soil

MB ID	ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
MBJV0507203	Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 12:21	--	1

Client Sample ID	Lab Sample Number	Date Received	Date Sampled	Matrix
Method Blank				Soil

MB ID	ANALYTE	EPA Method	Result	Units	Date Extracted	Date Analyzed	Qual	DF
MBJV0507204	Arsenic	6010B	<2.0	mg/kg	05/08/20 14:00	05/13/20 12:23	--	1

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QA/QC Report
for
Organochlorine Pesticides (EPA 8081A)
Reporting units: ppb

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Date of Extraction: 5/6/2020 10:00
Date of Analysis: 5/7/2020 10:26
Dup Date of Analysis: 5/7/2020 10:42
Laboratory Sample #: 25174-008
MS/MSD Qualifiers: None
Reference #: GTK 25174

Analyte	R1	SPC CONC	MS	MSD	%MS	%MSD	RPD	ACP %MS	ACP RPD	Qual
Gamma-BHC	0.00	20.0	11.7	13.1	58	66	11	44-130	26	☐
Heptachlor	0.00	20.0	10.4	11.8	52	59	13	41-130	27	☐
Aldrin	0.00	20.0	10.9	12.1	54	61	10	43-130	27	☐
Dieldrin	0.00	40.0	30.4	33.9	76	85	11	42-141	23	☐
Endrin	0.00	40.0	33.0	35.8	82	89	8	44-153	23	☐
DDT	0.00	40.0	38.1	39.3	95	98	3	46-153	22	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	MS	MSD	Qual
Decachlorobiphenyl	102	99	☐

LCS	LCSD	Qual
101	103	☐

ACP % RC
53-134

Laboratory Control Sample

Date of Extraction: 5/6/2020 10:00
Date of Analysis: 5/7/2020 9:56
Dup Date of Analysis: 5/7/2020 10:11
Laboratory Sample #: AV0506201
LCS Qualifiers: None

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
Gamma-BHC	20.0	13.4	15.1	67	75	12	45-130	26	☐
Heptachlor	20.0	11.6	13.3	58	67	14	40-130	28	☐
Aldrin	20.0	11.8	13.7	59	69	15	43-130	28	☐
Dieldrin	40.0	32.3	34.1	81	85	5	43-135	20	☐
Endrin	40.0	33.8	36.2	84	91	7	48-141	20	☐
DDT	40.0	36.2	38.3	91	96	6	43-153	20	☐

QA/QC Report
for
Organochlorine Pesticides (EPA 8081A)
Reporting units: ppb

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Date of Extraction: 5/8/2020 9:30
Date of Analysis: 5/8/2020 16:31
Dup Date of Analysis: 5/11/2020 10:50
Laboratory Sample #: 25174-034
MS/MSD Qualifiers: None
Reference #: GTK 25174

Analyte	R1	SPC CONC	MS	MSD	%MS	%MSD	RPD	ACP %MS	ACP RPD	Qual
Gamma-BHC	0.00	20.0	11.8	13.7	59	69	15	44-130	26	☐
Heptachlor	0.00	20.0	12.2	12.8	61	64	5	41-130	27	☐
Aldrin	0.00	20.0	11.6	13.9	58	69	18	43-130	27	☐
Dieldrin	0.00	40.0	31.3	34.0	78	85	8	42-141	23	☐
Endrin	0.00	40.0	33.5	35.8	84	89	7	44-153	23	☐
DDT	0.00	40.0	35.6	37.5	89	94	5	46-153	22	☐

Surrogate Recoveries for Spike Samples

Surrogate (%RC)	MS	MSD	Qual
Decachlorobiphenyl	92	101	☐

LCS	LCSD	Qual
100	94	☐

ACP % RC
53-134

Laboratory Control Sample

Date of Extraction: 5/8/2020 9:30
Date of Analysis: 5/8/2020 14:55
Dup Date of Analysis: 5/8/2020 16:16
Laboratory Sample #: AV0508201
LCS Qualifiers: None

Analyte	SPC CONC	LCS	LCSD	%LCS	%LCSD	RPD	ACP %LCS	ACP RPD	Qual
Gamma-BHC	20.0	11.9	13.8	59	69	15	45-130	26	☐
Heptachlor	20.0	12.1	13.6	61	68	12	40-130	28	☐
Aldrin	20.0	11.4	12.9	57	64	12	43-130	28	☐
Dieldrin	40.0	30.8	32.4	77	81	5	43-135	20	☐
Endrin	40.0	32.4	34.1	81	85	5	48-141	20	☐
DDT	40.0	35.9	34.9	90	87	3	43-153	20	☐

QA/QC Report
for
Metals

Reference #: GTK 25174 Reporting units: ppm

Matrix Spike (MS) / Matrix Spike Duplicate (MSD) **6010B**

Laboratory Sample #: 25174-001 **Date of Extraction:** 05/08/20 14:00

Analyte	MS Date of Analysis	MSD Date of Analysis	R1	SPC CONC	MS	MSD	% MS	% MSD	RPD	ACP %MS	ACP RPD	Qualifiers
Arsenic	05/13/20 12:34	05/13/20 12:36	0.00	20.0	21.9	20.4	109	102	7	75-125	20	--

Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD) **6010B**

Laboratory Sample #: JV0507203 **Date of Extraction:** 05/08/20 14:00

Analyte	LCS Date of Analysis	LCSD Date of Analysis		SPC CONC	LCS	LCSD	% LCS	% LCSD	RPD	ACP %LCS	ACP RPD	Qualifiers
Arsenic	05/13/20 12:25	05/13/20 12:27	--	20.0	19.7	20.2	99	101	3	80-120	20	--

Matrix Spike (MS) / Matrix Spike Duplicate (MSD) **6010B**

Laboratory Sample #: 25174-031 **Date of Extraction:** 05/08/20 14:00

Analyte	MS Date of Analysis	MSD Date of Analysis	R1	SPC CONC	MS	MSD	% MS	% MSD	RPD	ACP %MS	ACP RPD	Qualifiers
Arsenic	05/13/20 13:29	05/13/20 13:31	2.40	20.0	21.8	20.7	97	92	5	75-125	20	--

Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD) **6010B**

Laboratory Sample #: JV0507204 **Date of Extraction:** 05/08/20 14:00

Analyte	LCS Date of Analysis	LCSD Date of Analysis		SPC CONC	LCS	LCSD	% LCS	% LCSD	RPD	ACP %LCS	ACP RPD	Qualifiers
Arsenic	05/13/20 12:29	05/13/20 12:31	--	20.0	20.0	19.4	100	97	3	80-120	20	--

Data Qualifier Definitions

Qualifier

C8 = Sample RPD between the primary and confirmatory analysis exceeded 40%. Per EPA Method 8000C, the lower value was reported as there was no evidence of chromatographic problems.

25174-022	8081A	Dieldrin

N1 = See case narrative.

25174-040	8081A	4,4' -DDE analyzed @ 1:2 dilution on 05/11/20 @ 14:48.
25174-048	8081A	Endosulfan I and Endosulfan II analyzed @ 1:2 dilution on 05/12/20 @ 12:47.
25174-052	8081A	4,4' -DDE analyzed @ 1:2 dilution on 05/12/20 @ 13:02.

S1 = Surrogate recovery was above laboratory acceptance limits.

S5 = Surrogate recovery was below laboratory acceptance limits.

Definition of terms:

R1	Result of unspiked laboratory sample used for matrix spike determination.
SP CONC (or Spike Conc.)	Spike concentration added to sample or blank
MS	Matrix Spike sample result
MSD	Matrix Spike Duplicate sample result
%MS	Percent recovery of MS: {(MS-R1) / SP CONC} x100
%MSD	Percent recovery of MSD: {(MSD-R1) / SP CONC} x 100
RPD (for MS/MSD)	Relative Percent Difference: {(MS-MSD) / (MS+MSD)} x 100 x 2
LCS	Laboratory Control Sample result
LCSD	Laboratory Control Sample Duplicate result
%LCS	Percent recovery of LCS: {(LCS) / SP CONC} x100
%LCSD	Percent recovery of LCSD: {(LCSD) / SP CONC} x 100
RPD (for LCS/LCSD)	Relative Percent Difference: {(LCS-LCSD) / (LCS+LCSD)} x 100 x 2
ACP %LCS	Acceptable percent recovery range for Laboratory Control Samples.
ACP %MS	Acceptable percent recovery range for Matrix Spike samples
ACP RPD	Acceptable Relative Percent Difference
D	Detectable, result must be greater than zero
Qual	A checked box indicates a data qualifier was utilized and/or required for this analyte see attached explanation.
ND	Analyte Not Detected

Analysis Request and Chain of Custody Record

Lab Job No: 125174
Page 1 of 3

ORANGE COAST ANALYTICAL, INC. www.ocalab.com

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Phoenix, AZ 85040
(480) 736-0960 Fax (480) 736-0970

REQUIRED TURN AROUND TIME: Standard: ✓
72 Hours: _____ 48 Hours: _____ 24 Hours: _____

CUSTOMER INFORMATION		PROJECT INFORMATION	
COMPANY:	GeoTek, Inc	PROJECT NAME:	Fox Point Farms
SEND REPORT TO:	Anna Scott	NUMBER:	3611-3D
EMAIL:		ADDRESS:	Encinitas
ADDRESS:			
		P.O. #:	
PHONE:	FAX:	SAMPLED BY:	Amy

	SAMPLE ID	NO. OF CONTAINERS	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER TYPE	ANALYSIS REQUEST / PRESERVATIVE: 8081A Arsenic	REMARKS/PRECAUTIONS
1	GB-15 @ 0'	1	5/5/20	am	soil	glass	/ /	
2	GB-15 @ 1'						/ /	
3	GB-15 @ 2'							Hold
4	GB-16 @ 0'						/ /	
5	GB-16 @ 1'						/ /	#
6	GB-16 @ 2'							Hold
7	GB-17 @ 0'						/ /	
8	GB-17 @ 1'						/ /	
9	GB-17 @ 2'							Hold
10	GB-18 @ 0'						/ /	
11	GB-18 @ 1'						/ /	
12	GB-18 @ 2'							Hold

Total No. of Samples: 53 Method of Shipment: Hand Delivery

Preservative: 1 = Ice 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Relinquished By: Amy Scott Date/Time: 5/5/20 2:30	Received By: Date/Time:	Sample Matrix: GW - Groundwater, WW - Wastewater, SW - Stormwater, DW - Drinking Water, W - Water, SS - Soil/Solid, OT - Other
Relinquished By: Date/Time:	Received By: Date/Time:	
Relinquished By: Date/Time:	Received For Lab By: Date/Time: Mark Jones OA/QA 5-5-20 1430	Sample Integrity: 5 to 5.0°C Intact: _____ On Ice: (Yes) No @ 2 to 2°C

By signing above, client acknowledges responsibility for payment of all services requested on this chain of custody form and any additional services provided in support of this project. Payment is due within

Analysis Request and Chain of Custody Record

Lab Job No: 25174
Page 2 of 2

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Phoenix, AZ 85040
(480) 736-0960 Fax (480) 736-0970

REQUIRED TURN AROUND TIME: Standard: ✓
72 Hours: _____ 48 Hours: _____ 24 Hours: _____

CUSTOMER INFORMATION		PROJECT INFORMATION	
COMPANY:	Geotek	PROJECT NAME:	Fox Point Farms
SEND REPORT TO:	Anna Scott	NUMBER:	3611-SD
EMAIL:		ADDRESS:	Encinitas
ADDRESS:			
		P.O. #:	
PHONE:	FAX:	SAMPLED BY:	Anna Scott

	SAMPLE ID	NO. OF CONTAINERS	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER TYPE	ANALYSIS REQUEST / PRESERVATIVE: 8081A Arsenic	REMARKS/PRECAUTIONS
13	GB-19 @0'	1	5/5/20	am	soil	glass		
14	GB-19 @1'							
15	GB-19 @2'							Hold
16	GB-20 @0'							
17	GB-20 @1'							
18	GB-20 @2'							Hold
19	GB-21 @0'							
20	GB-21 @1'							
21	GB-21 @2'							Hold
22	GB-22 @0'							
23	GB-22 @1'							
24	GB-22 @2'							Hold
12								

Total No. of Samples: 53 Method of Shipment: Hand Delivery

Preservative: 1 = Ice 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Relinquished By: Anna Scott	Date/Time: 5/5/20 2:30	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received For Lab By: Mark Monroe OCAL	Date/Time: 5-5-20 1430

Sample Matrix:
GW - Groundwater
WW - Wastewater
SW - Stormwater
DW - Drinking Water
W - Water
SS - Soil/Solid
OT - Other

Sample Integrity: 5.1 0.5.0 °C
Intact: _____ On Ice: (Yes) No @ 2.1 °C

By signing above, client acknowledges responsibility for payment of all services requested on this chain of custody form and any additional services provided in support of this project. Payment is due within

Analysis Request and Chain of Custody Record

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Lab Job No: 25174
Page 3 of 5

REQUIRED TURN AROUND TIME: Standard: ✓
72 Hours: _____ 48 Hours: _____ 24 Hours: _____

CUSTOMER INFORMATION		PROJECT INFORMATION	
COMPANY:	GeoTek	PROJECT NAME:	Fox Point Farms
SEND REPORT TO:	Anna Scott	NUMBER:	3611-SD
EMAIL:		ADDRESS:	Encinitas
ADDRESS:			
		P.O. #:	
PHONE:	FAX:	SAMPLED BY:	

	SAMPLE ID	NO. OF CONTAINERS	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER TYPE	ANALYSIS REQUEST / PRESERVATIVE: 8081A Arsenic	REMARKS/PRECAUTIONS
25	GB-23 @0'	1	5/5/20	am	soil	glass	/ /	
26	GB-23 @1'						/ /	
27	GB-23 @2'							Hold
28	GB-24 @0'						/ /	
29	GB-24 @1'						/ /	
30	GB-24 @2'							Hold
31	GB-25 @0'						/ /	
32	GB-25 @1'						/ /	
33	GB-26 @0'						/ /	
34	GB-26 @1'						/ /	
35	GB-26 @2'							Hold
36	GB-27 @0'						/ /	
37	GB-27 @1'						/ /	
38	GB-27 @2'							Hold

Total No. of Samples: 53 Method of Shipment: Hand Delivery

Preservative: 1 = Ice 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Relinquished By:	Date/Time:	Received By:	Date/Time:
Anna Scott	5/5/20 2:30		
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received For Lab By:	Date/Time:
		Mark Yuri OCA, CA	5-5-20 1430

Sample Matrix:
GW - Groundwater
WW - Wastewater
SW - Stormwater
DW - Drinking Water
W - Water
SS - (Soil/Solid)
OT - Other

Sample Integrity: 5+0=5.0C

Intact: _____ On Ice: (Yes) / No @ DPR °C

By signing above, client acknowledges responsibility for payment of all services requested on this chain of custody form and any additional services provided in support of this project. Payment is due within

Analysis Request and Chain of Custody Record

Lab Job No: 25174
Page 4 of 5

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Phoenix, AZ 85040
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REQUIRED TURN AROUND TIME: Standard: ✓
72 Hours: _____ 48 Hours: _____ 24 Hours: _____

CUSTOMER INFORMATION		PROJECT INFORMATION	
COMPANY:	Group Delta	PROJECT NAME:	Fox Point Farms
SEND REPORT TO:	Anna Scott	NUMBER:	3611-50
EMAIL:		ADDRESS:	Encinitas
ADDRESS:			
		P.O. #:	
PHONE:	FAX:	SAMPLED BY:	

ANALYSIS REQUEST / PRESERVATIVE: 8081A Arsenic

	SAMPLE ID	NO. OF CONTAINERS	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER TYPE	REMARKS/PRECAUTIONS
39	GB-28@0'	1	5/5/20	am	soil	glass	
40	GB-28@1'						
41	GB-28@2'						Hold
42	GB-29@0'						
43	GB-29@1'						
44	GB-29@2'						Hold
45	GB-30@0'						
46	GB-30@1'						
47	GB-30@2'						Hold
48	GB-31@0'						
49	GB-31@1'						
50	GB-31@2'						Hold
51	GB-32@0'						
52 14	GB-32@1'						

Total No. of Samples: 53 Method of Shipment:

Preservative: 1 = Ice 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Relinquished By: Lin Scott	Date/Time: 5/5/20 2:30	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received For Lab By: Mark Morris OC/LA	Date/Time: 5-5-20 1430

Sample Matrix:
GW - Groundwater
WW - Wastewater
SW - Stormwater
DW - Drinking Water
W - Water
SS - Soil/Solid
OT - Other

Sample Integrity: 5.1 0=5.1°C
Intact: _____ On Ice: (Yes) No @ 2 #2 °C

By signing above, client acknowledges responsibility for payment of all services requested on this chain of custody form and any additional services provided in support of this project. Payment is due within

Analysis Request and Chain of Custody Record

Lab Job No: 25174
Page 5 of 5

ORANGE COAST ANALYTICAL, INC. www.ocalab.com

3002 Dow, Suite 532
Tustin, CA 92780
(714) 832-0064 Fax (714) 832-0067

4620 E. Elwood, Suite 4
Phoenix, AZ 85040
(480) 736-0960 Fax (480) 736-0970

REQUIRED TURN AROUND TIME: Standard: ✓
72 Hours:_____ 48 Hours:_____ 24 Hours:_____

CUSTOMER INFORMATION		PROJECT INFORMATION	
COMPANY:	Geotek	PROJECT NAME:	Fox Point Farms
SEND REPORT TO:	Anna Scott	NUMBER:	3611-SD
EMAIL:		ADDRESS:	Encinitas
ADDRESS:			
		P.O. #:	
PHONE:	FAX:	SAMPLED BY:	Anna Scott

ANALYSIS REQUEST / PRESERVATIVE

SAMPLE ID	NO. OF CONTAINERS	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER TYPE	REMARKS/PRECAUTIONS
53 GB-32 @2'						Hold

1

Total No. of Samples: 53 Method of Shipment:

Preservative: 1 = Ice 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Relinquished By: Anna Scott	Date/Time: 5/5/20 2:30	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received For Lab By: Mark Morris OCAL	Date/Time: 5-5-20 1430

Sample Matrix:
GW - Groundwater
WW - Wastewater
SW - Stormwater
DW - Drinking Water
W - Water
SS - (Soil/Solid)
OT - Other

Sample Integrity: 5+0=5.0°C
Intact: _____ On Ice: (Yes) No @ 2.4+2.6 °C

By signing above, client acknowledges responsibility for payment of all services requested on this chain of custody form and any additional services provided in support of this project. Payment is due within

Sample Receipt Report

Laboratory Reference: GTK 25174 Logged in by MM

Received:	05/05/20 14:30	Company Name:	GeoTek, Inc.
Method of Shipment:	Hand Delivered	Project Manager:	Ms. Anna Scott
Shipping Container:	Cooler	Project Name:	Fox Point Farms
# Shipping Containers:	1	Project #:	3611-SD

Sample Quantity
53 Soil

Chain of Custody		Complete ☑	Incomplete ☐	None ☐
Samples On Ice		Yes, Wet ☑	Yes, Blue ☐	No ☐
Observed Temp. (°C):	5	Thermometer ID: IR#2	Adjusted Temp.:	5+0=5
Shipping Intact		Yes ☑	N/A ☐	No ☐
Shipping Custody Seals Intact		Yes ☐	N/A ☑	No ☐
Samples Intact		Yes ☑		No ☐
Sample Custody Seals Intact		Yes ☐	N/A ☑	No ☐
Custody Seals Signed & Dated		Yes ☐	N/A ☑	No ☐
Proper Test Containers		Yes ☑		No ☐
Proper Test Preservations		Yes ☑		No ☐
Samples Within Hold Times		Yes ☑		No ☐
VOAs Have Zero Headspace		Yes ☐	N/A ☑	No ☐
Sample Labels		Complete ☑	Incomplete ☐	None ☐
Sample Information Matches COC		Yes ☑	N/A ☐	No ☐

Notes

Client Notified _____ By _____ On _____

APPENDIX C

PROJECT TEAM QUALIFICATIONS

Christopher D. Livesey, CEG, PG

Branch Manager—Vista, California

Areas of Expertise

Geotechnical Field Investigations,
Fault Hazard Studies, Downtown San Diego Infill Development,
Grading and Earthwork Construction,
Design Build Construction,
Industry Standard of Care,
Hillside, Liquefaction, Seismic Hazard,
Landslide Repair.

Education

Bachelor of Science in Geology, Cal State University, Long Beach

Registrations

Certified Engineering Geologist,
CEG 2733

Professional Geologist,
GEO 9584

Certifications

OSHA 40-Hr HAZWOPER Training
OSHA 8-Hour Refresher
ACI-Field Tech Grade I
First Aid/CPR

Professional Affiliations

San Diego Association of Geologist
-Past President, 2018

San Diego Geological Society
-Retired Board Member

Professional Experience

Mr. Livesey has been involved with numerous residential, commercial, and public works, projects within the southern California area. From single lot custom homes to master-planned communities to urban high-rise infill development. Many private and public works projects have been successfully completed across southern and central California. Mr. Livesey has gained experience from proposing services, to the laboratory, to site geotechnical and fault hazard evaluations, to construction observation and testing, to project management, which provides a long case history throughout development of a project. Projects include fault evaluations, various commercial and residential site developments, These projects have generally included preliminary geotechnical investigations, slope stability evaluations, review and design recommendations, street improvements construction and testing services, design build construction projects, landslide repair and project management.

Representative Project Experience

Project experience has included residential and commercial developments, for various land developers including City Ventures, Streetlights Residential, DR Horton, Chelsea Investments, Holland Partners Group, Level 3 Construction, Kettler Leweck Engineering, Integral Communities, HNTB, etc. Mr. Livesey has also completed geotechnical investigations and performed project management for numerous residential tracts and commercial facilities all across Southern California.

Professional History

Branch Manager - GeoTek, Inc. Vista, CA - 2019 to Present
Project Geologist - GeoTek, Inc., Vista, CA - 2018 to 2019
Project Geologist - Leighton Consulting, San Diego, 2013 to 2018
Geologist - Leighton Consulting, Inc., Irvine, 2004 to 2013
Engineering Technician - GeoSoils, Inc., Santa Ana, 2002 to 2004

Edward H. LaMont, CEG, PG, REA

Branch Manager

Areas of Expertise

Grading and Earthwork Construction Industry Standard of Care
Hillside, Liquefaction, Seismic Hazard, Fault Analyses and Forensic Studies.

Education

Bachelor of Science in Geology, Cal State University, Northridge

Registrations

Registered Geologist, PG 6025
Certified Engineering Geologist, CEG 1892
Registered Environmental Assessor, REA I 04620

Certifications

OSHA 40-Hr HAZWOPER Training
OSHA 8-Hour Refresher
First Aid/CPR

Professional Affiliations

Association of Engineering Geologist
South Coast Geological Society
San Diego Association of Geologist
Inland Geological Society
BIA Riverside

Professional Experience

Mr. LaMont has been involved with numerous large residential and commercial earthwork projects within the southern California area. Numerous residential and public works projects have been successfully completed in the High Desert area, including in the cities of Victorville, Hesperia, Adelanto, Palmdale and Lancaster. Multi-million cubic yard projects in Riverside County include Eagle Glen in Corona and The Retreat in south Corona/Riverside County; Projects in the Temecula area include commercial Developments for The Garrett Group, a Temecula Valley Winery, Ranch Development (Old Town Temecula) and single-family residential projects. These projects have generally included preliminary geotechnical investigations, slope stability evaluations, review and design recommendations, fault evaluations, street improvements construction and testing services, and project management.

In addition to the experience on large hillside residential developments, Mr. LaMont has performed numerous fault and landslide investigations, and performed governmental review of geotechnical reports for the County of Orange. Mr. LaMont has also completed geotechnical studies for the Riverside County Flood Control, City of Lancaster and City of Victorville.

Representative Project Experience

Project experience has included residential tracts, for various land developers including The Garrett Group, The Focus Group, Frontier Homes; Empire Homes; D.R. Horton; Beazer Homes; Tandis Homes; Kaylind Communities; Ion Communities; Empire Land, Royal Investors Group and Heller Development. Mr. LaMont has also completed geotechnical investigations and performed project management for several residential tracts and commercial facilities within the Mountain Gate Development – Corona; Norco; Moreno Valley; Beaumont; Winchester; Murrieta; City of Riverside; Fontana; Rancho Cucamonga; Banning; San Jacinto, Temecula (PHS Building Site for The Garrett Group, Old Town for Ranch Development, etc.)

Professional History

Branch Manager - Riverside GeoTek, Inc., 2004 to present

Vice President, Principal Geologist --GeoSoils, Inc., Santa Ana, 2003 to 2004

Geotechnical Reviewer, Geologist. County of Orange, 2001 to 2003.

Project Geologist. GeoSoils, Inc., Santa Ana, California, 1994 to 2001.

Staff/Project Geologist GeoSoils, Inc., Carlsbad, California, 1988-1994.

Anna M. Scott

Project Geologist

Education

B.S., Geology, University of California, Riverside

Professional Experience

Ms. Anna Scott has over 30 years of geotechnical experience and has worked on or managed a wide range of geotechnical projects throughout southern California, including the High Desert, Inland Empire, Antelope Valley, Coachella Valley, Orange County and Bakersfield area. Her geotechnical experience has ranged from field and laboratory technician to field, staff and project geologist. Ms. Scott's responsibilities include preparation of proposals, preliminary geotechnical investigations, seismic studies, settlement monitor installation and studies, and field studies as a technician and geologist for large grading projects. Ms. Scott has performed Phase I and II ESAs for various property acquisitions and transfers throughout southern California.

Representative Project Experience

Ms. Scott has worked on numerous projects throughout southern California. Her experience includes working with various entities including the public and private sectors. Her vast knowledge includes geotechnical, environmental and materials services. This experience has been attained through small and large projects over the numerous years of her career.

Employment History

GeoTek, Inc., Riverside-Project Geologist, February 2005 – Present

GeoSoils, Inc., Santa Ana, September 1987 – February 2005

APPENDIX K-4 VOLUNTARY ASSISTANCE PROGRAM CONCURRENCE LETTER

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County of San Diego

DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION
P.O. BOX 129261, SAN DIEGO, CA 92112-9261
Phone: (858) 505-6700 or (800) 253-9933 Fax: (858) 514-6583
www.sdcdeh.org

AMY HARBERT
ASSISTANT DIRECTOR

June 2, 2020

Mr. Sean Kilkenny
Nolen Communities
1680 N. Coast Highway
Encinitas, CA 92024

Dear Mr. Kilkenny:

VOLUNTARY ASSISTANCE PROGRAM CASE - DEH2016-LSAM-000610
FOX POINT FARMS
1150 QUAIL GARDENS DRIVE, ENCINITAS CA

Staff of the Department of Environmental Health (DEH) have reviewed the January 28, 2020 *Limited Additional Soil Sampling* (LASS), and the May 26, 2020 *Report of Supplemental Sampling Results* (SSR), both prepared by GEOTEK Consultants. The LASS details sampling results for 30 soil samples collected from 14 soil borings (GB-1 – GB-14) on November 27, 2019. The samples were analyzed for total petroleum hydrocarbons (TPH), organo-chlorinated pesticides (OCPs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and selectively for polychlorinated biphenyls (PCBs). OCPs and arsenic were below residential environmental screening levels (ESLs) for all samples in the LASS. Based on an April 30, 2020 email from DEH, additional soil samples were requested in various agricultural areas in order to assure adequate OCP characterization of the Site.

The SSR provides additional soil sampling results requested by the April 30, 2020 DEH email. The SSR notes the results for 53 soil samples collected from 18 soil borings in (GB-15 – GB-32) on May 5, 2020. These samples were analyzed for OCPs and arsenic, which were all below residential ESLs.

In summary, all soil samples taken at the Site during both the November 27, 2019, and May 5, 2020 sampling events were below the residential ESLs for OCPs and arsenic. Based on this, GEOTEK indicates that no further sampling or investigation is necessary for this Site with respect to the historical agricultural usage. Provided that the information is accurate and representative of site conditions, DEH *concurs.*

If you have any questions, please call me at (858) 505-6856.

Sincerely,

Ewan Moffat

Digitally signed by Ewan Moffat
Date: 2020.06.03 09:40:09 -07'00'

Ewan Moffat, Hydrogeologist
Site Assessment and Mitigation Program

cc: Mr. Christopher D. Livesey, GEOTEK.

APPENDIX K-5 APPROVAL LETTER FOR THE SOIL MANAGEMENT PLAN

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County of San Diego

DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION
P.O. BOX 129261, SAN DIEGO, CA 92112-9261
Phone: (858) 505-6700 or (800) 253-9933 Fax: (858) 514-6583
www.sdcdeh.org

AMY HARBERT
ASSISTANT DIRECTOR

June 2, 2020

Mr. Sean Kilkenny
Nolen Communities
1680 N. Coast Highway
Encinitas, CA 92024

Dear Mr. Kilkenny:

VOLUNTARY ASSISTANCE PROGRAM CASE - DEH2016-LSAM-000610
FOX POINT FARMS
1150 QUAIL GARDENS DRIVE, ENCINITAS CA

Staff of the Department of Environmental Health (DEH) have reviewed the June 2, 2020 *Soil Management Plan* (SMP), prepared by GEOTEK Consultants. The SMP proposes to excavate soil located in the areas of former soil borings GB-1, GB-2 and GB-3, which had soil levels of diesel range organics (DROs) of 24,000 mg/kg, 340 mg/kg, and 240 mg/kg, respectively. Soil will be containerized, and disposed off-site to an appropriate location. It is estimated that approximately eight cubic yards of soil will be excavated.

In order to safeguard the community, dust control will include the application of water during excavating. Additional dust control measures may be identified and implemented during the construction, especially if dry and windy conditions persist during the periods of earthwork. If any unforeseen contamination is discovered via odor, vision, dust monitoring devices, etc., the work will be ceased, and soil samples will be collected for possible contamination.

Confirmation samples for total petroleum hydrocarbons (TPH) will be taken along the excavation sides at mid-height and bottom-central to confirm that the impacted soil has been mitigated.

DEH *approves* the SMP and the estimated locations of confirmation samples as noted in Figures 1B, 2 and 3 of the SMP.

If you have any questions, please call me at (858) 505-6856.

Sincerely,

Ewan Moffat

Digitally signed by Ewan Moffat
Date: 2020.06.03 09:29:56 -07'00'

Ewan Moffat, Hydrogeologist
Site Assessment and Mitigation Program

cc: Mr. Christopher D. Livesey, GEOTEK.

APPENDIX L PRELIMINARY HYDROLOGY STUDY

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PRELIMINARY HYDROLOGY STUDY

FOR

FOX POINT FARMS
1150 QUAIL GARDENS DRIVE, ENCINITAS, CA 92024

CITY OF ENCINITAS, CA

PREPARED FOR:

NOLEN COMMUNITIES, LLC
1680 N. COAST HIGHWAY 101, #51
ENCINITAS, CA 92024

PREPARED BY:

PASCO LARET SUITER & ASSOCIATES, INC.
535 N. HIGHWAY 101, SUITE A
SOLANA BEACH, CA 92075
PH: (858) 259-8212

Prepared: December 11, 2019
Revised: March 2, 2020
Revised: May 19, 2020
Revised: July 24, 2020

_____

TYLER G. LAWSON, RCE 80356 DATE

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Proposed Project	1.3
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Appendix B: Hydrology Support Material	
Appendix C: AES Pre and Post-Development Output Reports	
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Appendix E: AES Pre and Post-Development Output Report for Offsite Improvements	
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1.0 EXECUTIVE SUMMARY

1.1 Introduction

This Preliminary Hydrology Study for the proposed development at 1150 Quail Gardens Drive has been prepared to analyze the hydrologic and hydraulic characteristics of the existing and proposed project site. This report intends to present both the methodology and the calculations used for determining the runoff from the project site in both the pre-developed (existing) conditions and the post-developed (proposed) conditions produced by the 2-year, 10-year, and 100-year, 6-hour storm.

1.2 Existing Conditions

The subject property is located north of Leucadia Boulevard, and is geographically settled between Quail Gardens Drive to the east and Sidonia Street to the west. The site is bordered by single family homes to the west and south; Encinitas Ranch Golf Course to the east, and undeveloped open space to the north. The site consists of greenhouses, processing facilities, one single family residence, fences, storage tanks, and paved access for circulation throughout the site. Existing site topography is generally flat with slopes ranging from 0 to 5 percent and elevations ranging from 310 to 325 feet.

The existing site is comprised of approximately 20.01 acres. In its current state, a majority of the site drains from east to west and enters into Sidonia Street via surface/sheet flow. This is shown as Drainage Area A-1 on the Pre-Development Hydrology Node Map included in Appendix A. Once in Sidonia Street, runoff from Drainage Area A-1 flows north and enters into the existing drainage system located at the intersection of St. Albans Drive. A pre and post development hydrology analysis of the existing system has been included as a part of this study to ensure the proposed project will not negatively impact the existing storm drain system. Results of the offsite analysis are provided in the Conclusions section of this report. Supporting calculations and AES output reports are provided in Appendix E.

Drainage Area A-2 flows northeast via surface flow and is collected in a concrete brow ditch and conveyed north where it discharges into the open space lot located to the north. Drainage Area A-3 travels southeast and is collected in a concrete brow ditch where it is eventually collected and pumped to the existing reservoir located at the southeast corner of Quail Gardens Drive and Leucadia Boulevard. Finally, Drainage Area A-4 flows south into an existing swale and is collected and conveyed east via storm drain and enters into the existing storm drain system within Quail Gardens Drive.

Adopting a City of Encinitas city council requirement for this drainage study, no impervious area credit will be taken for existing greenhouses in the predevelopment condition, however; runoff generated from the greenhouses was included in Section 1.4 for comparison purposes. In the existing condition, pavement and various hardscape results in a 14% impervious basin. Based on infiltration and geotechnical investigations performed on the site, the basin was analyzed assuming Type D soils. Based upon soil type and the amount of existing impervious area onsite, a weighted runoff coefficient of 0.43 was calculated using the

methodology described in Section 3.1.2 of the San Diego County Hydrology Manual and the formula provided therein. Using the Rational Method Procedure outlined in the San Diego County Hydrology Manual, a peak flow rate and time of concentration was calculated for the basin for the 100-year, 6-hour storm event. Refer to the pre-development hydrology calculations included in Appendix B of this report for detailed analysis and the Pre-Development Hydrology Node Map included in Appendix A of this report for pre-development drainage basin delineation and runoff points.

1.3 Proposed Project

The proposed project includes the demolition of all onsite structures and the construction of 250 multi-family homes, a 3,500 SF restaurant, a 10,000 SF recreational center, and approximately 5,000 SF of multi-use event space. Paved private driveways and alleyways as well as onsite grading and supporting infrastructure are also proposed as a part of this development. Proposed pad elevations range from 323 feet at the north end of the property to approximately 313 along the westerly edge of the property.

As shown on the Post-Development Hydrology Node Map, runoff from Drainage Area A-1 sheet flows north into the proposed cross gutter and travels west where it is collected in an inlet. From here runoff is conveyed westerly via storm drain and discharged into the proposed biofiltration basin located directly adjacent to Sidonia Street. After being treated, runoff travels north to a proposed storm water vault where it is stored then metered out into the proposed storm drain system within Sidonia Street. The proposed system eventually connects into the existing system located at the north end of Sidonia Street. Runoff generated in Drainage Areas B-2 and B-3 will be collected via area drains and piped to their respective biofiltration basins where it will be treated and stored. Runoff from these areas will then travel east via storm drain and enter the existing system located within Quail Gardens Drive. Finally, runoff from Drainage Areas A-4 through A-7 will be conveyed west via surface flow and storm drain to the large biofiltration basin along Sidonia Street. Once treated, the runoff will inter into the proposed vault and then connect into the proposed storm drain system within Sidonia Street. Runoff coefficients were calculated for each sub-drainage basin based on methodology described in Section 3.1.2 of the San Diego County Hydrology Manual and the formula provided therein. See Section 2.4 of this report for post-development runoff coefficient calculations. For a breakdown of the pre- and post development peak flow rates for the 100-year, 6-hour storm event, see Section 1.4 of this report.

In an effort to comply with the City of Encinitas' Stormwater standards and the MS4 Permit, all runoff generated onsite will be conveyed to number of biofiltration basins located throughout the site which have been sized for pollution and flow control purposes. As alluded to above, to help supplement the storage capacity provided by the proposed basins along Sidonia Street, a storm water vault is proposed to help meet HMP requirements for the site. Flow rates generated on-site will be controlled via a small low-flow orifice to consistent with HMP requirements as outlined in the City of Encinitas BMP Manual. In larger storm events, runoff not filtered through the engineered soil will be conveyed via an overflow outlet structure consisting of a 3-foot by 3-foot grate located on top of the catch

basin. Runoff conveyed via the outlet structure will bypass the small low-flow orifice and be conveyed directly to the proposed storm drain system in Sidonia Street.

Conclusions

Onsite

As illustrated in the Peak Flow Rate Comparison Table shown below, the project has been designed to adequately convey the 100-year, 6-hour storm event. In addition, in the mitigated post development condition, the site has been designed to attenuate the 100-year storm event and reduce flow rates below what is currently leaving the site today. As a result, the project will not adversely affect downstream conditions. For comparison purposes, table 3 includes the runoff generated from the greenhouses.

Peak Flow Rate Comparison Table (100 Year, 6 Hour)			
Pre-Development		Post Development (Unmitigated)	
Drainage Area	Peak Flow (CFS)	Drainage Area	Peak Flow (CFS)
A-1	17.39	A-1, A-4, A-5, A-6, A-7	43.16
A-2	3.32	N/A*	0
A-3	0.41	N/A*	0
A-4	4.70	B-2, B-3	3.32

Peak Flow Rate Comparison Table (100 Year, 6 Hour)			
Pre-Development		Post Development (Mitigated)	
Drainage Area	Peak Flow (CFS)	Drainage Area	Peak Flow (CFS)
A-1	17.39	A-1, A-4, A-5, A-6, A-7	3.03
A-2	3.32	N/A*	0
A-3	0.41	N/A*	0
A-4	4.70	B-2, B-3	3.20

Peak Flow Rate Comparison Table (100 Year, 6 Hour)			
Pre-Development (Greenhouses Included)		Post Development (Mitigated)	
Drainage Area	Peak Flow (CFS)	Drainage Area	Peak Flow (CFS)
A-1	52.87	A-1, A-4, A-5, A-6, A-7	3.03
A-2	8.96	N/A*	0
A-3	1.20	N/A*	0
A-4	11.66	B-2, B-3	3.20

*Drainage diverted to Sidonia Street

Offsite

Offsite analysis of the existing and proposed storm drain systems within Sidonia Street has been completed as a part of this study. Though the project is expected to drastically reduce

the runoff leaving the site in the post-development mitigated condition, the proposed storm drain system within Sidonia Street has been sized to convey the unmitigated condition. As shown in the table below, the project is expected to generate approximately 43 CFS in the unmitigated condition. In the mitigated condition this is reduced to roughly 3 CFS. Per the AES hydraulic calculations included in Appendix E, a 24" diameter pipe has been proposed to convey the unmitigated flow rates generated on-site. Per our analysis, we do not anticipate any adverse effects on the existing system within Sidonia. Please refer to Sheet C1.5 for the proposed offsite improvements within Sidonia Street.

Offsite Peak Flow Rate Comparison Table (100 Year, 6 Hour)	
Description	Peak Flow (CFS)
Pre-Development	47.50
Post-Development (Unmitigated)	76.79
Post-Development (Mitigated)	40.91

Please note the improvements associated with the proposed widening of Sidonia Street have been included with this analysis. Please refer to the Offsite Hydrology Analysis Node Map included in Appendix D for more information.

1.5 References

"San Diego County Hydrology Manual", revised June 2003, County of San Diego, Department of Public Works, Flood Control Section.

"San Diego County Drainage Design Manual", revised May 2005, County of San Diego, Department of Public Works, Flood Control Section

"Engineering Design Manual Chapter 7: BMP Design Manual", revised February 2016, City of Encinitas

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov. Accessed May 2015

"Chapter 7: Encinitas Stormwater Manual", Version 1.3, adopted March 17, 2010, City of Encinitas, Engineering Department

2.0 METHODOLOGY

2.1 Introduction

The hydrologic model used to perform the hydrologic analysis presented in this report utilizes the Rational Method (RM) equation, Q = CIA. The RM formula estimates the peak rate of runoff based on the variables of area, runoff coefficient, and rainfall intensity. The rainfall intensity (I) is equal to:

$$I = 7.44 \times P_6 \times D^{-0.645}$$

Where:

I = Intensity (in/hr)
P_6 = 6-hour precipitation (inches)
D = duration (minutes – use Tc)

Note: The 24-hour P cannot be utilized for the 24-hour intensity per Section 3.1.3 of the County Hydrology Manual

Using the Time of Concentration (Tc), which is the time required for a given element of water that originates at the most remote point of the basin being analyzed to reach the point at which the runoff from the basin is being analyzed. The RM equation determines the storm water runoff rate (Q) for a given basin in terms of flow (typically in cubic feet per second (cfs) but sometimes as gallons per minute (gpm)). The RM equation is as follows:

$$Q = CIA$$

Where:

Q = flow (in cfs)
C = runoff coefficient, ratio of rainfall that produces storm water runoff (runoff vs. infiltration/evaporation/absorption/etc)
I = average rainfall intensity for a duration equal to the Tc for the area, in inches per hour.
A = drainage area contributing to the basin in acres.

The RM equation assumes that the storm event being analyzed delivers precipitation to the entire basin uniformly, and therefore the peak discharge rate will occur when a raindrop that falls at the most remote portion of the basin arrives at the point of analysis. The RM also assumes that the fraction of rainfall that becomes runoff or the runoff coefficient C is not affected by the storm intensity, I, or the precipitation zone number.

Rational Method calculations were performed using the AES-2016 computer program. To perform the hydrology routing, the total watershed area is divided into sub-areas which

discharge at designated nodes. The procedure for the sub-area summation model is as follows:

1. Subdivide the watershed into an initial sub-area (generally 1 lot) and subsequent sub-areas, which are generally less than 10 acres in size. Assign upstream and downstream node numbers to each sub-area.

2. Estimate an initial Tc by using the appropriate nomograph or overland flow velocity estimation. The minimum Tc considered is 5.0 minutes.

3. Using the initial Tc, determine the corresponding values of I. Then Q = CIA.

4. Using Q, estimate the travel time between this node and the next by Manning's equation as applied to particular channel or conduit linking the two nodes. Then, repeat the calculation for Q based on the revised intensity (which is a function of the revised time of concentration)

The nodes are joined together by links, which may be street gutter flows, drainage swales, drainage ditches, pipe flow, or various channel flows. The AES computer sub-area menu is as follows:

SUBAREA HYDROLOGIC PROCESS

1. Confluence analysis at node.
2. Initial sub-area analysis (including time of concentration calculation).
3. Pipe flow travel time (computer estimated).
4. Pipe flow travel time (user specified).
5. Trapezoidal channel travel time.
6. Street flow analysis through sub-area.
7. User-specified information at node.
8. Addition of sub-area runoff to main line.
9. V-gutter flow through area.
10. Copy main stream data to memory bank
11. Confluence main stream data with a memory bank
12. Clear a memory bank.
31. Compute pipe-flow travel time thru subarea using computer estimated pipe size.
51. Compute trapezoidal channel flow travel time thru subarea.
81. Addition of subarea to mainline peak flow.

At the confluence point of two or more basins, the following procedure is used to combine peak flow rates to account for differences in the basin's times of concentration. This adjustment is based on the assumption that each basin's hydrographs are triangular in shape.

1. If the collection streams have the same times of concentration, then the Q values are directly summed,

$$Qp = Qa + Qb; \; Tp = Ta = Tb$$

2. If the collection streams have different times of concentration, the smaller of the tributary Q values may be adjusted as follows:
    a. The most frequent case is where the collection stream with the longer time of concentration has the larger Q. The smaller Q value is adjusted by a ratio of rainfall intensities.

$$Qp = Qb + Qa\,(Ib/Ia); \; Tp = Ta$$

    b. In some cases, the collection stream with the shorter time of concentration has the larger Q. Then the smaller Q is adjusted by a ratio of the T values.

$$Qp = Qb + Qa\,(Tb/Ta); \; Tp = Tb$$

2.2 County of San Diego Criteria

As defined by the San Diego County Hydrology Manual (SDCHM) dated June 2003, the Rational Method is the preferred equation for determining the hydrologic characteristics of basins up to approximately one square mile in size. The County of San Diego has developed its own tables, nomographs, and methodologies for analyzing storm water runoff for areas within the county. The County has also developed precipitation isopluvial contour maps that show even lines of rainfall anticipated from a given storm event (i.e. 100-year, 6-hour storm).

One of the variables of the RM equation is the runoff coefficient, C. The runoff coefficient is dependent only upon land use and soil type and the County of San Diego has developed a table of Runoff Coefficients for Urban Areas to be applied to basin located within the County of San Diego. The table categorizes the land use, the associated development density (dwelling units per acre) and the percentage of impervious area. Each of the categories listed has an associated runoff coefficient, C, for each soil type class.

The County has also illustrated in detail the methodology for determining the Time of Concentration, in particular the Initial Time of Concentration (Ti). The County has adopted the Federal Aviation Agency's (FAA) overland time of flow equation. This equation essentially limits the flow path length for the initial time of concentration to lengths under 100 feet, and is dependent on land use and slope. See the "Rational Formula – Overland Time of Flow Nomograph," shown in Figure 3-3 or Table 3-2 of the San Diego County Hydrology Manual (June 2003).

The travel time (Tt) is computed by dividing the length of the flow path by the computed velocity. Figure 3-6 of the SDCHM is used to estimate time of travel for street gutter flow. Velocity in a channel is estimated by using the nomograph show in Figure 3-7 (Manning's Equation Nomograph). Travel time in natural watersheds is calculated from the Kirpich nomograph in Figure 3-4 or from the Kirpich equation.

See Appendix B of this report for San Diego County Hydrology Manual reference material.

2.3 City of Encinitas Standards

The City of Encinitas has additional requirements for hydrology reports which are outlined in the Grading, Erosion and Sediment Control Ordinance. Please refer to this manual for further details. The drainage analysis used in this study is also consistent with the requirements set forth in Section 2.3 of the City of Encinitas Engineering Design Manual.

2.4 Runoff Coefficient Determination

In accordance with County of San Diego standards, runoff coefficients were based on land use and soil type. The soil condition used in this study is consistent with Type D soil quantities. An appropriate runoff coefficient (C) for each type of land use in the subarea was selected from Table 3-1 of the San Diego County Hydrology Manual and multiplied by the percentage of total area (A) included in that class. The sum of products for all land uses is the weighted runoff coefficient ($\sum$[C]). See the table below for weighted runoff coefficient "C" calculations. The Existing and Post-Development Hydrology Maps show the drainage basin subareas, on-site drainage system and nodal points.

$$\frac{\sum C = C_1A_1 \text{ x } C_2A_2}{A_1+A_2}$$

Summary of Existing Condition Weighted Runoff Coefficients						
Drainage Basin	Total Area, A (ac)	C_1	A_1	C_2	A_1	C
A	20.02	0.9	2.80	0.35	17.22	0.43

Summary of Post-Development Condition Weighted Runoff Coefficients						
Drainage Area	Total Area, A (ac)	C_1	A_1	C_2	A_1	C
A1	1.74	0.9	1.22	0.35	0.52	0.74
A2	4.64	0.9	3.25	0.35	1.39	0.74
A3	5.04	0.9	3.53	0.35	1.51	0.74
A4	6.32	0.9	0.71	0.35	5.61	0.41
A5	0.62	0.9	0.46	0.35	0.16	0.76
B1	0.44	0.9	0.24	0.35	0.20	0.65
B2	0.59	0.9	0.27	0.35	0.32	0.60

2.5 Hydraulics

The hydraulics of existing and proposed storm drain pipes were analyzed using the AES computer program. For pipe flow, a Manning's N value of 0.013 was used to reflect the use of HDPE and RCP pipe. All proposed storm drain pipes have been sized based on the proposed unmitigated flow condition for the 100-year storm event. Curb inlet and catch basin capacity calculations will be provided upon final engineering.

2.6 Detention Analysis

The HMP Biofiltration basins (BMP) provide pollutant control, hydromodification management flow control and mitigation of the 100-year storm event peak flow rate. The 100-year storm event detention analysis was performed using HydroCAD Stormwater Modeling software. The inflow runoff hydrographs to the BMPs were modeled using RatHydro which is a Rational Method Design Storm Hydrograph software that creates a hydrograph using the results of the Rational Method calculations. HydroCAD has the ability to route the 100-year 6-hour storm event inflow hydrographs through the BMPs and based on the BMP cross sectional geometry, stage storage and outlet structure data, HydroCAD calculates the detained peak flow rates and detained times to peak.

Summary of Detention Basin Routing						
BMP	Node	Tributary Area (ac)	Tc in (min)	Tc out (min)	Q100 in (cfs)	Q100 out (cfs)
BMP A1	100.4	1.74	9.12	13.92	5.68	0.75
BMP A2	100.6	4.65	10.13	19.53	14.23	0.96
BMP A3	100.8	5.04	11.12	21.92	14.48	0.90
BMP A4	100.1	6.32	14.39	20.89	8.62	5.28
BMP A5	600.2	0.62	5.45	5.55	2.91	2.87
VAULT	100.12	17.80	20.98	104.58	7.85	2.38
BMP B1	200.1	0.44	7.15	7.55	1.48	1.42
BMP B2	300.2	0.59	7.90	8.10	1.87	1.83

The detained flow rates and time of concentrations from the detention basins were then entered into the project's AES hydrologic study using Process Code 7 (see Section 2.1 of this report for summary of AES process codes). A mitigated condition AES report was produced for the 100-year storm event. See Appendix C for proposed mitigated condition hydrologic calculations. HydroCAD detention output reports will be provided upon final engineering.

The HMP Biofiltration facilities consists of a basin with 18 inches of engineered soil and permavoid storage layer of varying depths. Runoff will be biofiltered through the engineered soil and permavoid layers, then collected in a series of small PVC drainpipes and directed to a catch basin located in the HMP Biofiltration basin where runoff will be mitigated via a small HMP orifice to comply with HMP requirements. In larger storm events, runoff not filtered through the engineered soil and permavoid layers will be conveyed via an overflow outlet structure. Runoff conveyed via the outlet structure will

bypass the small HMP orifice and be conveyed directly to the proposed storm drain discharge pipe.

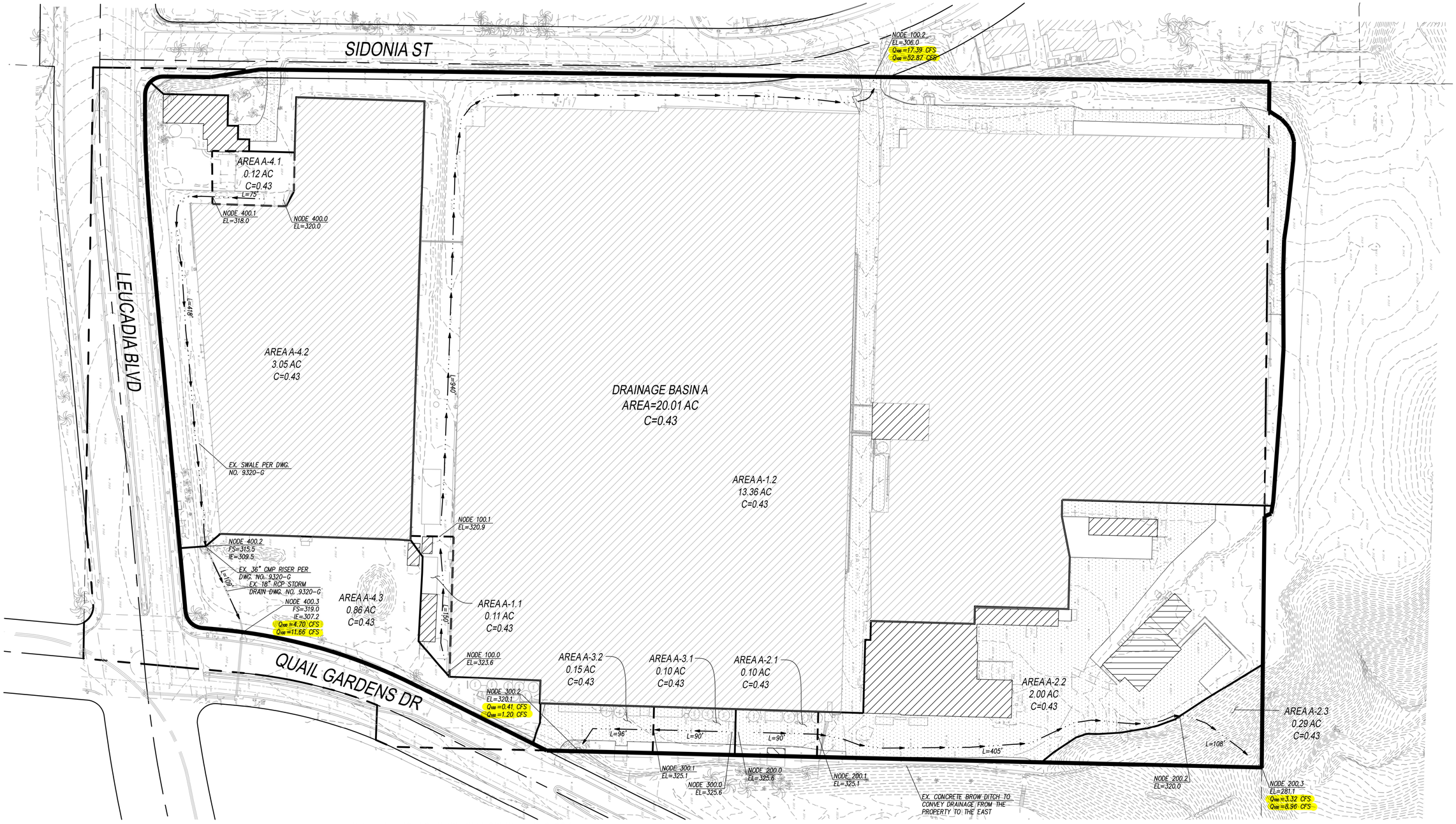
Based on the results of the HydroCAD analysis, the HMP Biofiltration facilities provide mitigation for the 100-year storm event peak flow rate, detaining the proposed condition Drainage A Q100 to 3.03 cfs, which is below the existing condition Q100 of 17.39 cfs, and detaining the proposed condition Drainage B Q100 to 3.20 cfs, which is below the existing condition Q100 of 4.70 cfs. Refer to Appendix C for the proposed mitigated condition hydrologic calculations.

APPENDIX A

Pre and Post Development Hydrology Node Maps

PRE-DEVELOPMENT HYDROLOGY NODE MAP

FOX POINT, ENCINITAS, CA



LEGEND

- LIMITS OF EXISTING BUILDING
- LIMITS OF EXISTING AC PAVEMENT
- LIMITS OF EXISTING GREENHOUSE
- STREET CENTERLINE
- RIGHT OF WAY
- PROPERTY BOUNDARY
- DRAINAGE PATH OF TRAVEL
- SUB-BASIN BOUNDARY
- INITIAL SUB-BASIN BOUNDAY
- EXISTING CONTOURS

PLAN VIEW - FOX POINT PRE-DEVELOPMENT HYDROLOGY

SCALE: 1" = 50'

AREA CALCULATIONS (GREENHOUSE EXCLUDED)

DRAINAGE BASIN TOTAL AREA = 871,740 SF
IMPERVIOUS AREA = 121,250 SF
PERVIOUS AREA = 750,490 SF
PERCENT IMPERVIOUS = 14%
SOIL CLASSIFICATION = D
Cp (PER TABLE 3-1 OF THE SDCHM) = 0.35
C = 0.9(% IMPERVIOUS) + Cp(1-% IMPERVIOUS) =
0.9(0.14)+0.35(1-0.14) = 0.43

AREA CALCULATIONS (GREENHOUSE INCLUDED)

DRAINAGE BASIN TOTAL AREA = 871,740 SF
IMPERVIOUS AREA = 701,450 SF
PERVIOUS AREA = 170,290 SF
PERCENT IMPERVIOUS = 80%
SOIL CLASSIFICATION = D
Cp (PER TABLE 3-1 OF THE SDCHM) = 0.35
C = 0.9(% IMPERVIOUS) + Cp(1-% IMPERVIOUS) =
0.9(0.80)+0.35(1-0.80) = 0.79

REGISTERED PROFESSIONAL ENGINEER
TYLER G LAWSON
No. 80356
Exp. 12/31/20
CIVIL
STATE OF CALIFORNIA

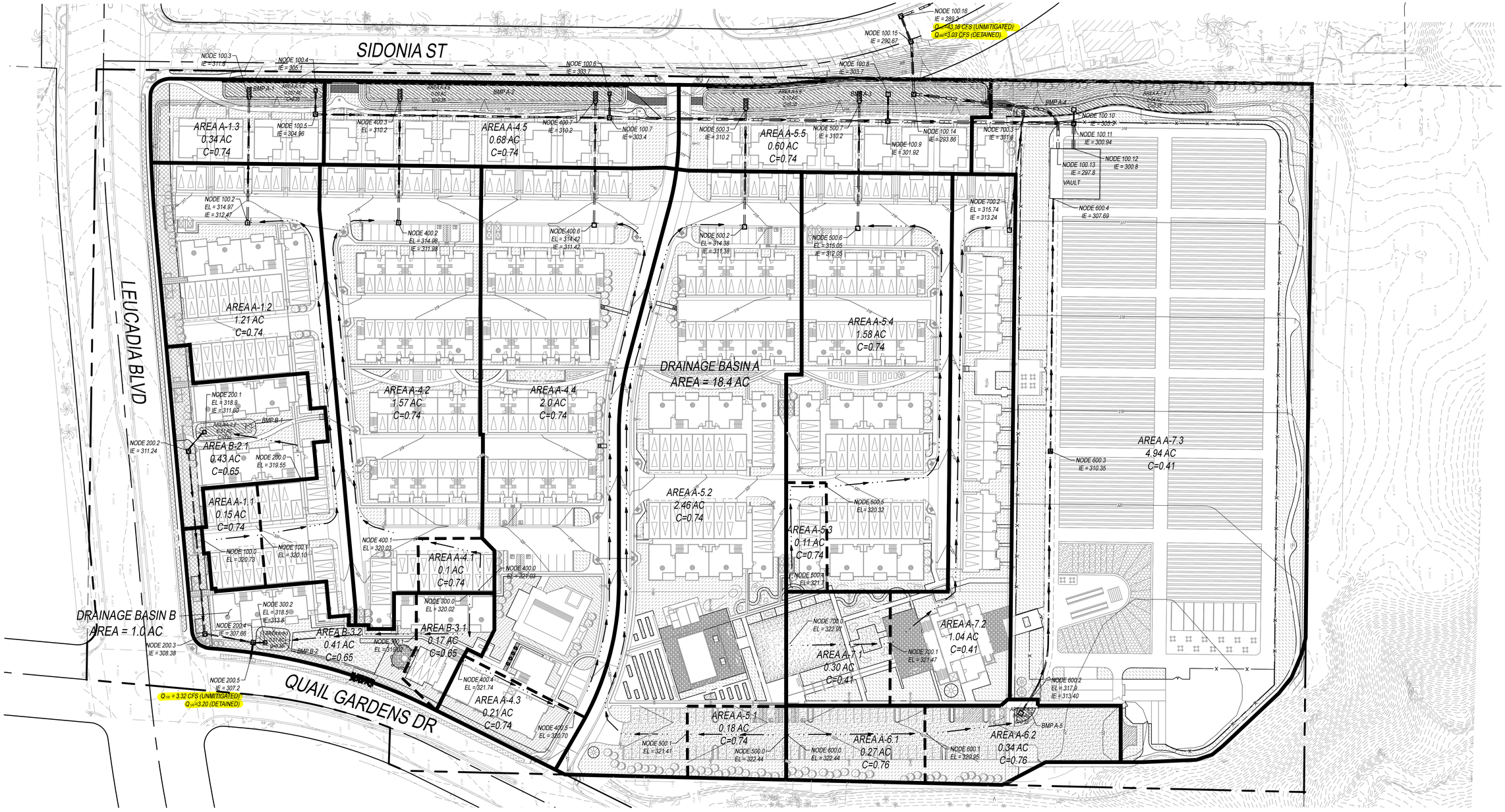
0 50' 100' 150'
SCALE: 1"=50'

PREPARED BY:
PASCO LARET SUITER & ASSOCIATES
CIVIL ENGINEERING + LAND PLANNING + LAND SURVEYING
535 North Highway 101, Ste A, Solana Beach, CA 92075
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POST-DEVELOPEMENT HYDROLOGY NODE MAP

FOX POINT, ENCINITAS, CA



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- ADJACENT PROPERTY LINE
- CENTER LINE OF ROAD
- DRAINAGE BOUNDARY

PLAN VIEW - FOX POINT PRE-DEVELOPMENT HYDROLOGY

SCALE: 1" = 50'

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APPENDIX B

Hydrology Support Material

County of San Diego Hydrology Manual

Rainfall Isopluvials

2 Year Rainfall Event - 6 Hours

---------- Isopluvial (inches)

Orange County

Riverside County

Imperial County

Pacific Ocean

Mexico

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
CHULA VISTA
IMPERIAL BEACH
SD

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'

33°30' 33°15' 33°00' 32°45' 32°30'

DPW GIS
Department of Public Works
Geographic Information Services

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N W E S

3 0 3 Miles

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County of San Diego Hydrology Manual

Rainfall Isopluvials

10 Year Rainfall Event - 6 Hours

Isopluvial (inches)

Orange County

Riverside County

Imperial County

Mexico

Pacific Ocean

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
CHULA VISTA
IMPERIAL BEACH
SD

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

DPW GIS
Department of Public Works
Geographic Information Services

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N W E S

3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 6 Hours

Isopluvial (inches)

Orange County

Riverside County

Imperial County

Pacific Ocean

Mexico

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
SD
CHULA VISTA
IMPERIAL BEACH

33°30'
33°15'
33°00'
32°45'
32°30'
117°30'
117°15'
117°00'
116°45'
116°30'
116°15'

DPW GIS
Department of Public Works
Geographic Information Services

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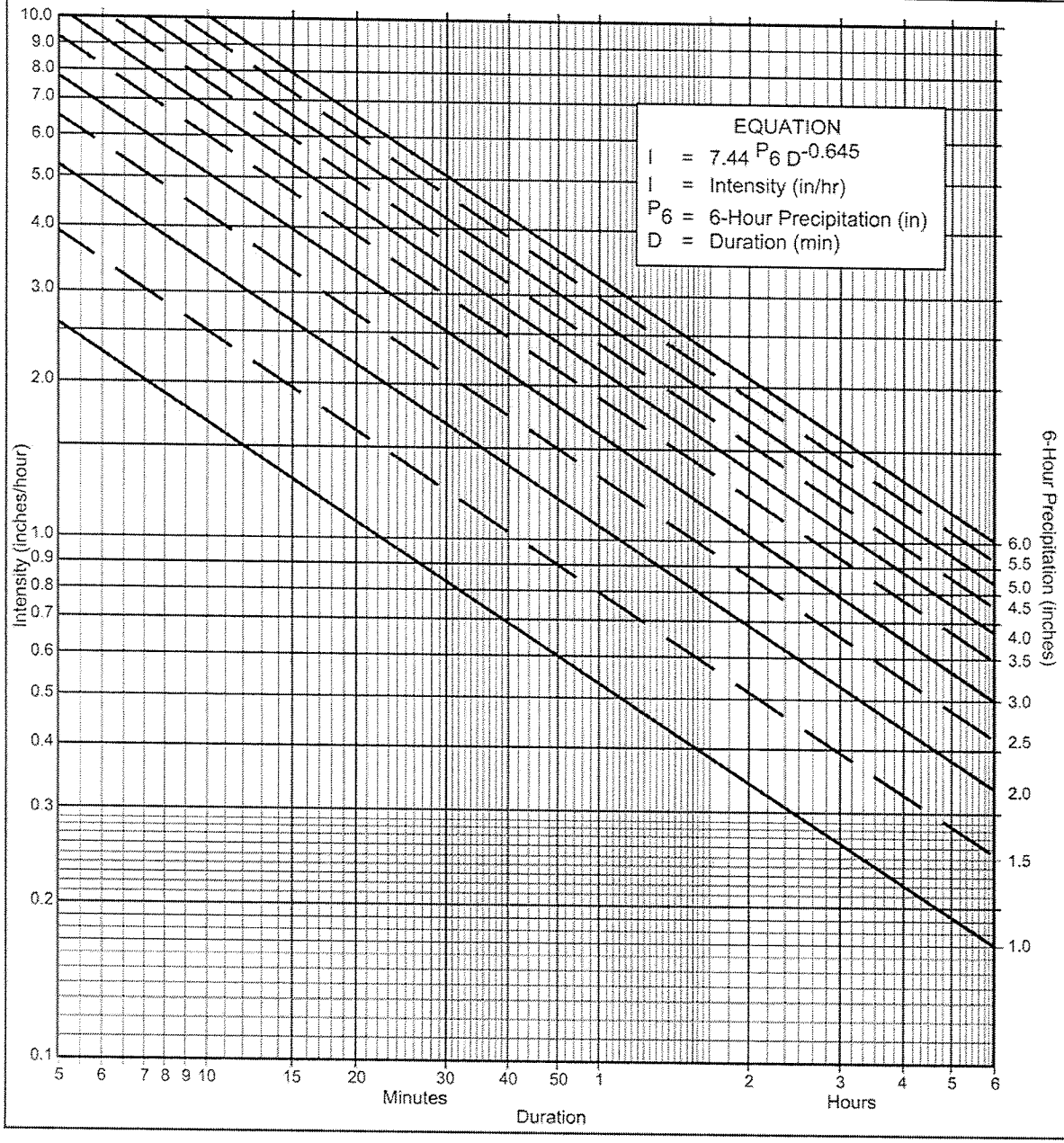
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3 0 3 Miles



Directions for Application:

(1) From precipitation maps determine 6 hr and 24 hr amounts for the selected frequency. These maps are included in the County Hydrology Manual (10, 50, and 100 yr maps included in the Design and Procedure Manual).

(2) Adjust 6 hr precipitation (if necessary) so that it is within the range of 45% to 65% of the 24 hr precipitation (not applicaple to Desert).

(3) Plot 6 hr precipitation on the right side of the chart.

(4) Draw a line through the point parallel to the plotted lines.

(5) This line is the intensity-duration curve for the location being analyzed.

Application Form:

(a) Selected frequency _____ year

(b) P_6 = 2.5 in., P_{24} = 4.5, $\frac{P_6}{P_{24}}$ = 55.6 %(2)

(c) Adjusted P_6(2) = 2.5 in.

(d) t_x = 8.9 min.

(e) I = 4.54 in./hr.

Note: This chart replaces the Intensity-Duration-Frequency curves used since 1965.

P6	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Duration	I	I	I	I	I	I	I	I	I	I	I
5	2.63	3.95	5.27	6.59	7.90	9.22	10.54	11.86	13.17	14.49	15.81
7	2.12	3.18	4.24	5.30	6.36	7.42	8.48	9.54	10.60	11.66	12.72
10	1.68	2.53	3.37	4.21	5.05	5.90	6.74	7.58	8.42	9.27	10.11
15	1.30	1.95	2.59	3.24	3.89	4.54	5.19	5.84	6.49	7.13	7.78
20	1.08	1.62	2.15	2.69	3.23	3.77	4.31	4.85	5.39	5.93	6.46
25	0.93	1.40	1.87	2.33	2.80	3.27	3.73	4.20	4.67	5.13	5.60
30	0.83	1.24	1.66	2.07	2.49	2.90	3.32	3.73	4.15	4.56	4.98
40	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.79	4.13
50	0.60	0.90	1.19	1.49	1.79	2.09	2.39	2.69	2.98	3.28	3.58
60	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	2.92	3.18
90	0.41	0.61	0.82	1.02	1.23	1.43	1.63	1.84	2.04	2.25	2.45
120	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70	1.87	2.04
150	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32	1.47	1.62	1.76
180	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.18	1.31	1.44	1.57
240	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.08	1.19	1.30
300	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13
360	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.84	0.92	1.00

Intensity-Duration Design Chart - Template

FIGURE

3-1

Table 3-1
RUNOFF COEFFICIENTS FOR URBAN AREAS

Land Use		Runoff Coefficient "C"				
			Soil Type			
NRCS Elements	County Elements	% IMPER.	A	B	C	D
Undisturbed Natural Terrain (Natural)	Permanent Open Space	0*	0.20	0.25	0.30	0.35
Low Density Residential (LDR)	Residential, 1.0 DU/A or less	10	0.27	0.32	0.36	0.41
Low Density Residential (LDR)	Residential, 2.0 DU/A or less	20	0.34	0.38	0.42	0.46
Low Density Residential (LDR)	Residential, 2.9 DU/A or less	25	0.38	0.41	0.45	0.49
Medium Density Residential (MDR)	Residential, 4.3 DU/A or less	30	0.41	0.45	0.48	0.52
Medium Density Residential (MDR)	Residential, 7.3 DU/A or less	40	0.48	0.51	0.54	0.57
Medium Density Residential (MDR)	Residential, 10.9 DU/A or less	45	0.52	0.54	0.57	0.60
Medium Density Residential (MDR)	Residential, 14.5 DU/A or less	50	0.55	0.58	0.60	0.63
High Density Residential (HDR)	Residential, 24.0 DU/A or less	65	0.66	0.67	0.69	0.71
High Density Residential (HDR)	Residential, 43.0 DU/A or less	80	0.76	0.77	0.78	0.79
Commercial/Industrial (N. Com)	Neighborhood Commercial	80	0.76	0.77	0.78	0.79
Commercial/Industrial (G. Com)	General Commercial	85	0.80	0.80	0.81	0.82
Commercial/Industrial (O.P. Com)	Office Professional/Commercial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (Limited I.)	Limited Industrial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (General I.)	General Industrial	95	0.87	0.87	0.87	0.87

*The values associated with 0% impervious may be used for direct calculation of the runoff coefficient as described in Section 3.1.2 (representing the pervious runoff coefficient, Cp, for the soil type), or for areas that will remain undisturbed in perpetuity. Justification must be given that the area will remain natural forever (e.g., the area is located in Cleveland National Forest).
DU/A = dwelling units per acre
NRCS = National Resources Conservation Service

Note that the Initial Time of Concentration should be reflective of the general land-use at the upstream end of a drainage basin. A single lot with an area of two or less acres does not have a significant effect where the drainage basin area is 20 to 600 acres.

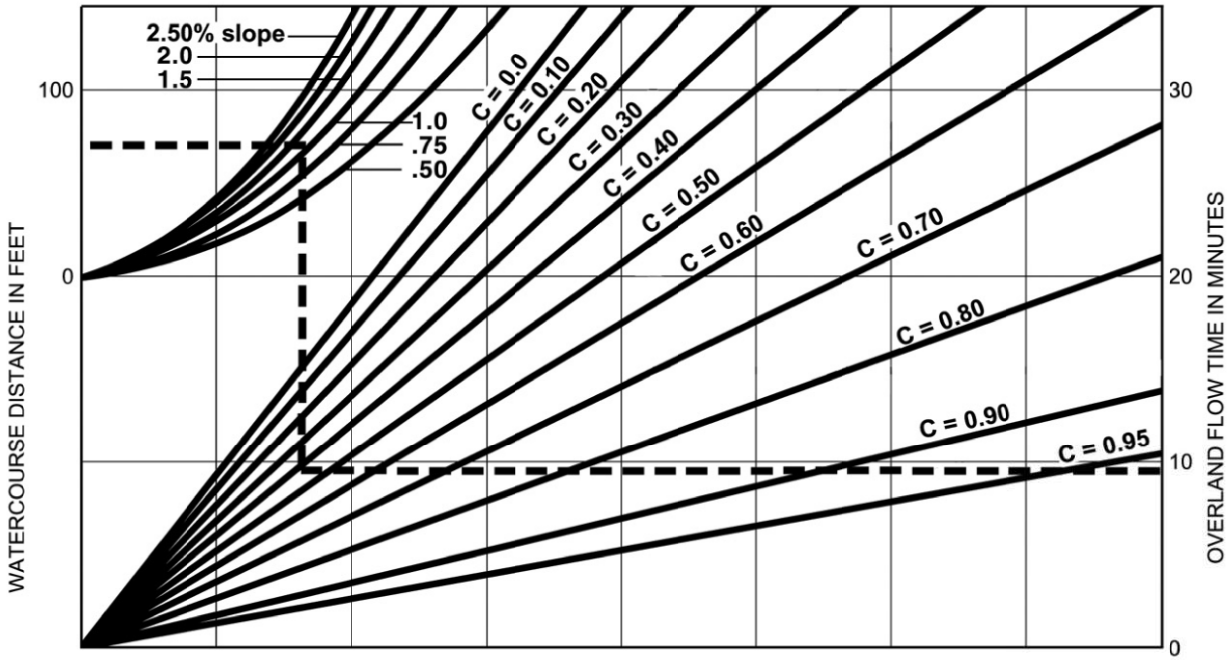
Table 3-2 provides limits of the length (Maximum Length (L_M)) of sheet flow to be used in hydrology studies. Initial T_i values based on average C values for the Land Use Element are also included. These values can be used in planning and design applications as described below. Exceptions may be approved by the "Regulating Agency" when submitted with a detailed study.

Table 3-2

MAXIMUM OVERLAND FLOW LENGTH (L_M)
& INITIAL TIME OF CONCENTRATION (T_i)

Element*	DU/ Acre	.5%		1%		2%		3%		5%		10%	
		L_M	T_i	L_M	T_i	L_M	T_i	L_M	T_i	L_M	T_i	L_M	T_i
Natural		50	13.2	70	12.5	85	10.9	100	10.3	100	8.7	100	6.9
LDR	1	50	12.2	70	11.5	85	10.0	100	9.5	100	8.0	100	6.4
LDR	2	50	11.3	70	10.5	85	9.2	100	8.8	100	7.4	100	5.8
LDR	2.9	50	10.7	70	10.0	85	8.8	95	8.1	100	7.0	100	5.6
MDR	4.3	50	10.2	70	9.6	80	8.1	95	7.8	100	6.7	100	5.3
MDR	7.3	50	9.2	65	8.4	80	7.4	95	7.0	100	6.0	100	4.8
MDR	10.9	50	8.7	65	7.9	80	6.9	90	6.4	100	5.7	100	4.5
MDR	14.5	50	8.2	65	7.4	80	6.5	90	6.0	100	5.4	100	4.3
HDR	24	50	6.7	65	6.1	75	5.1	90	4.9	95	4.3	100	3.5
HDR	43	50	5.3	65	4.7	75	4.0	85	3.8	95	3.4	100	2.7
N. Com		50	5.3	60	4.5	75	4.0	85	3.8	95	3.4	100	2.7
G. Com		50	4.7	60	4.1	75	3.6	85	3.4	90	2.9	100	2.4
O.P./Com		50	4.2	60	3.7	70	3.1	80	2.9	90	2.6	100	2.2
Limited I.		50	4.2	60	3.7	70	3.1	80	2.9	90	2.6	100	2.2
General I.		50	3.7	60	3.2	70	2.7	80	2.6	90	2.3	100	1.9

*See Table 3-1 for more detailed description



EXAMPLE:

Given: Watercourse Distance (D) = 70 Feet
Slope (s) = 1.3%
Runoff Coefficient (C) = 0.41
Overland Flow Time (T) = 9.5 Minutes

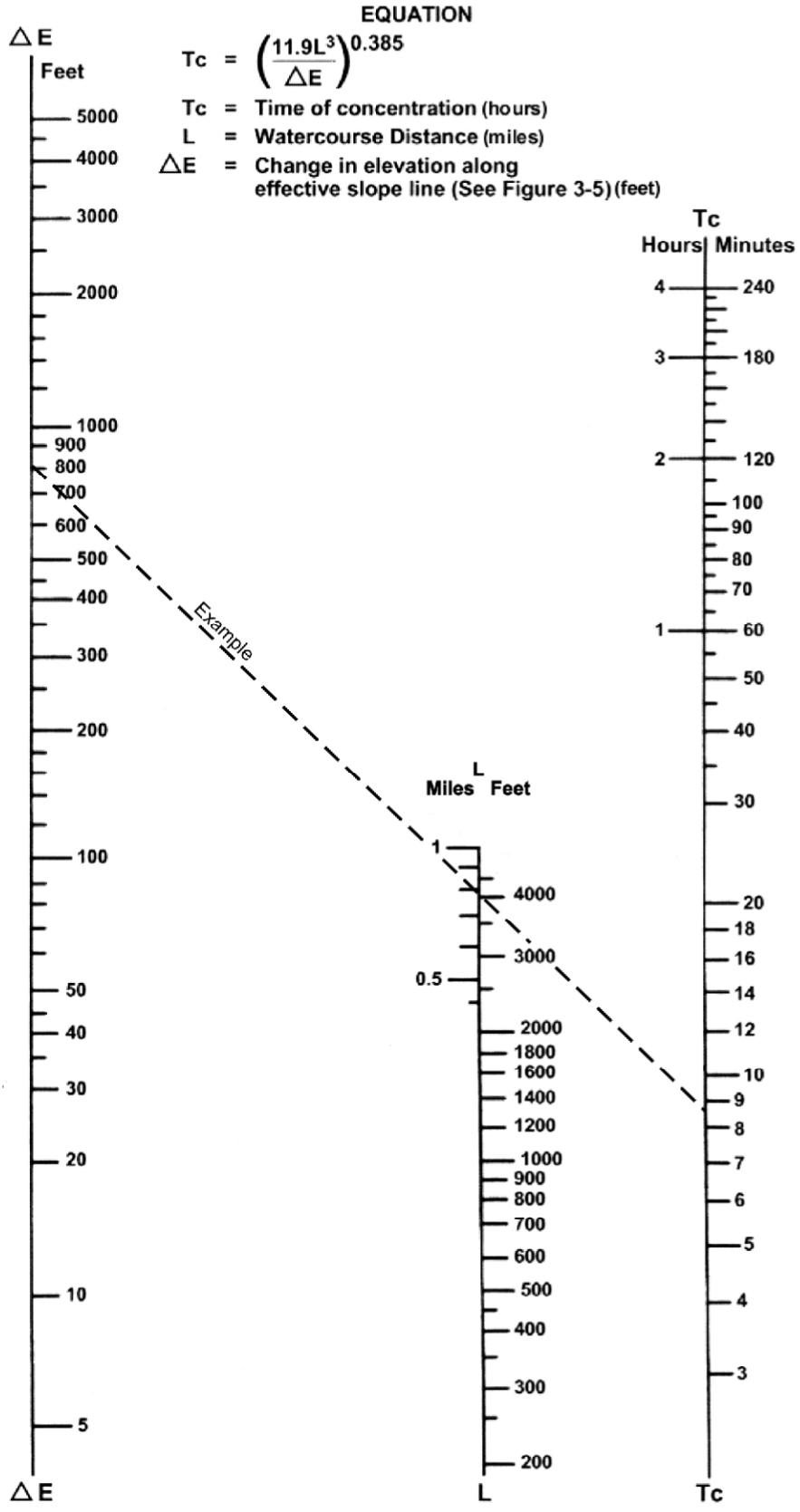
$$T = \frac{1.8\,(1.1-C)\sqrt{D}}{\sqrt[3]{s}}$$

SOURCE: Airport Drainage, Federal Aviation Administration, 1965

FIGURE

3-3

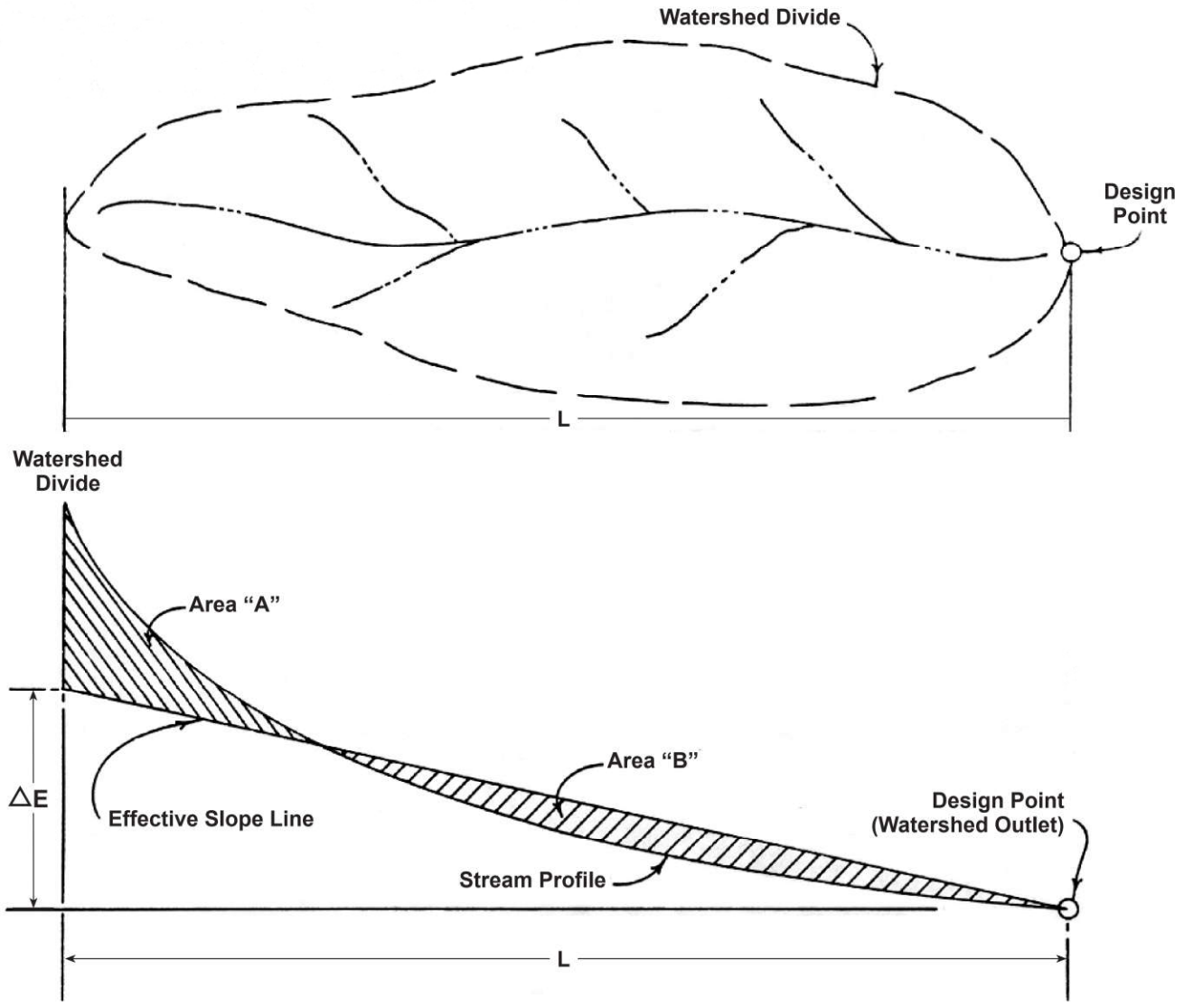
Rational Formula - Overland Time of Flow Nomograph



SOURCE: California Division of Highways (1941) and Kirpich (1940)

FIGURE 3-4

Nomograph for Determination of
Time of Concentration (Tc) or Travel Time (Tt) for Natural Watersheds

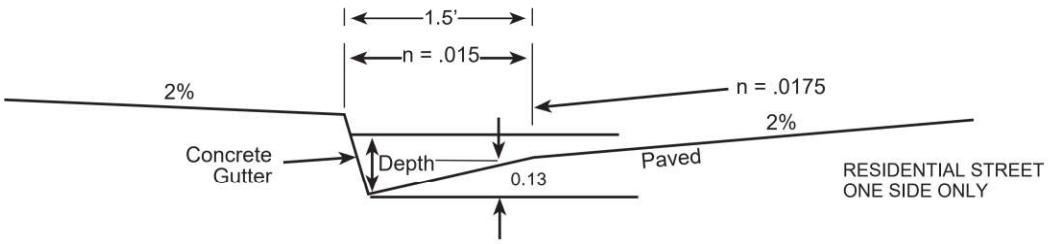


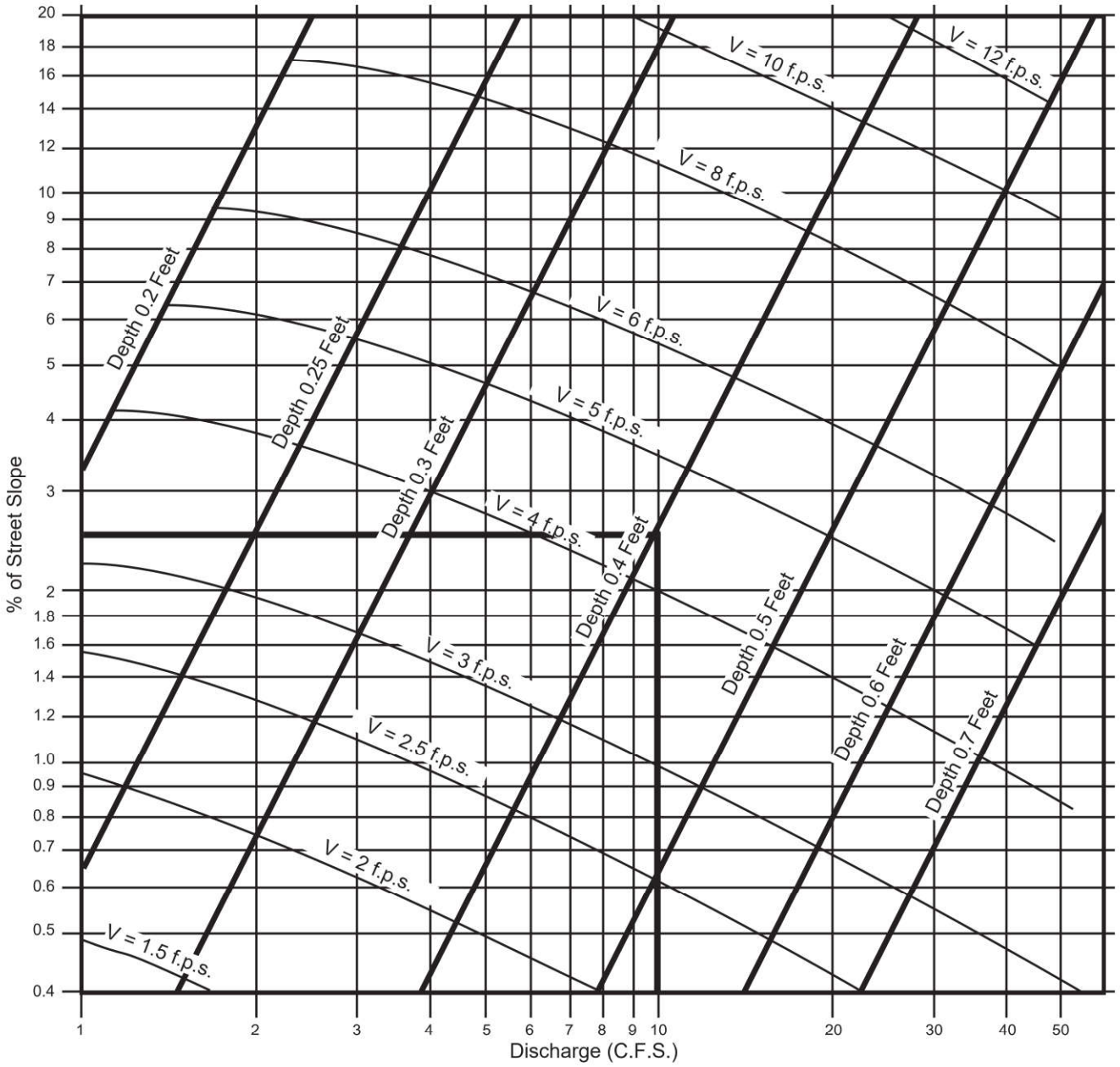
SOURCE: California Division of Highways (1941) and Kirpich (1940)

FIGURE

Computation of Effective Slope for Natural Watersheds

3-5





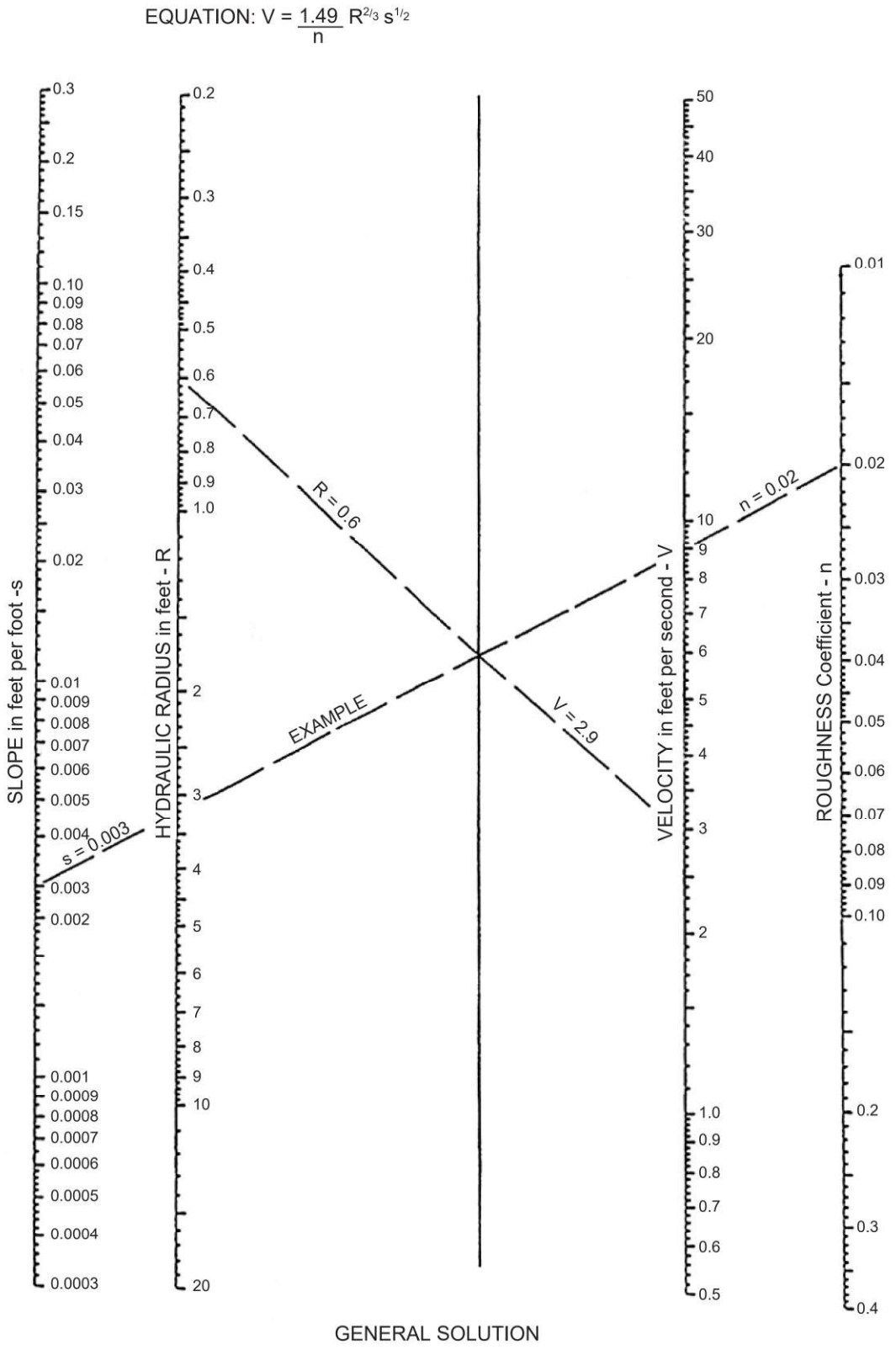
EXAMPLE:
Given: Q = 10 S = 2.5%
Chart gives: Depth = 0.4, Velocity = 4.4 f.p.s.

SOURCE: San Diego County Department of Special District Services Design Manual

FIGURE

Gutter and Roadway Discharge - Velocity Chart

3-6



SOURCE: USDOT, FHWA, HDS-3 (1961)

FIGURE 3-7

Manning's Equation Nomograph



Map Scale: 1:3,050 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 14, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 3, 2014—Nov 22, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AtE	Altamont clay, 15 to 30 percent slopes, warm MAAT, MLRA 20	0.7	1.4%
CbB	Carlsbad gravelly loamy sand, 2 to 5 percent slopes	27.8	57.1%
CfB	Chesterton fine sandy loam, 2 to 5 percent slopes	5.8	11.8%
ClD2	Cieneba coarse sandy loam, 5 to 15 percent slopes, eroded	5.8	12.0%
RuG	Rough broken land	7.9	16.2%
SbC	Salinas clay loam, 2 to 9 percent slopes	0.7	1.4%
Totals for Area of Interest		**48.6**	**100.0%**

APPENDIX C

AES Pre and Post-Development Output Reports

AES Pre-Development Output Report

PRE-DEVELOPMENT CONDITION

```
**************************************************************************

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2008 Advanced Engineering Software (aes)
              Ver. 15.0 Release Date: 04/01/2008  License ID 1452

                              Analysis prepared by:

                         PASCO LARET SUITER & ASSOCIATES
                              535 NORTH HIGHWAY 101
                                     SUITE A
                              SOLANA BEACH CA 92705

--------------------------------------------------------------------------
  FILE NAME: 3084EXA1.DAT
  TIME/DATE OF STUDY: 09:01 05/08/2020
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    100.10 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   150.00
  UPSTREAM ELEVATION(FEET) =    323.60
  DOWNSTREAM ELEVATION(FEET) =    320.90
  ELEVATION DIFFERENCE(FEET) =      2.70
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    8.978
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    82.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.516
  SUBAREA RUNOFF(CFS) =      0.21
```

```
 TOTAL AREA(ACRES) =      0.11   TOTAL RUNOFF(CFS) =      0.21

****************************************************************************
 FLOW PROCESS FROM NODE    100.10 TO NODE    100.20 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    320.90  DOWNSTREAM(FEET) =    306.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   940.00   CHANNEL SLOPE =  0.0159
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  50.000
 MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   1.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.913
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .4300
 S.C.S. CURVE NUMBER (AMC II) =   0
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.08
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.79
 AVERAGE FLOW DEPTH(FEET) =   0.23   TRAVEL TIME(MIN.) =   8.74
 Tc(MIN.) =   17.71
 SUBAREA AREA(ACRES) =    13.77       SUBAREA RUNOFF(CFS) =   17.25
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.430
 TOTAL AREA(ACRES) =       13.9         PEAK FLOW RATE(CFS) =      17.39

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.32   FLOW VELOCITY(FEET/SEC.) =   2.12
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.20 =    1090.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =       13.9  TC(MIN.) =     17.71
 PEAK FLOW RATE(CFS)   =      17.39
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

PRE-DEVELOPMENT CONDITION

```
**************************************************************************

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              Ver. 15.0 Release Date: 04/01/2008  License ID 1452

                              Analysis prepared by:

                          PASCO LARET SUITER & ASSOCIATES
                               535 NORTH HIGHWAY 101
                                      SUITE A
                               SOLANA BEACH CA 92705

--------------------------------------------------------------------------
  FILE NAME: 3084EXA2.DAT
  TIME/DATE OF STUDY: 09:12 05/08/2020
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    200.10 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    90.00
  UPSTREAM ELEVATION(FEET) =    325.60
  DOWNSTREAM ELEVATION(FEET) =    325.10
  ELEVATION DIFFERENCE(FEET) =      0.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =   10.601
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    52.22
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.057
  SUBAREA RUNOFF(CFS) =      0.17
```

```
 TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.17

****************************************************************************
 FLOW PROCESS FROM NODE    200.10 TO NODE    200.20 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    325.10  DOWNSTREAM(FEET) =    320.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   405.00   CHANNEL SLOPE =  0.0126
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  50.000
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   1.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.286
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .4300
 S.C.S. CURVE NUMBER (AMC II) =   0
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.60
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.65
 AVERAGE FLOW DEPTH(FEET) =   0.07   TRAVEL TIME(MIN.) =   4.10
 Tc(MIN.) =   14.70
 SUBAREA AREA(ACRES) =     2.00       SUBAREA RUNOFF(CFS) =    2.83
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.430
 TOTAL AREA(ACRES) =        2.1         PEAK FLOW RATE(CFS) =       2.97

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.10   FLOW VELOCITY(FEET/SEC.) =   1.93
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    200.20 =     495.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    200.20 TO NODE    200.30 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    320.00  DOWNSTREAM(FEET) =    281.10
 CHANNEL LENGTH THRU SUBAREA(FEET) =   108.00   CHANNEL SLOPE =  0.3602
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  50.000
 MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   1.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.226
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .4300
 S.C.S. CURVE NUMBER (AMC II) =   0
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.17
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   4.22
 AVERAGE FLOW DEPTH(FEET) =   0.06   TRAVEL TIME(MIN.) =   0.43
 Tc(MIN.) =   15.12
 SUBAREA AREA(ACRES) =     0.29       SUBAREA RUNOFF(CFS) =    0.40
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.430
 TOTAL AREA(ACRES) =        2.4         PEAK FLOW RATE(CFS) =       3.32

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.06   FLOW VELOCITY(FEET/SEC.) =   3.93
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    200.30 =     603.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        2.4  TC(MIN.) =     15.12
 PEAK FLOW RATE(CFS)   =       3.32
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

PRE-DEVELOPMENT CONDITION

```
**************************************************************************

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              Ver. 15.0 Release Date: 04/01/2008  License ID 1452

                              Analysis prepared by:

                          PASCO LARET SUITER & ASSOCIATES
                               535 NORTH HIGHWAY 101
                                      SUITE A
                               SOLANA BEACH CA 92705

--------------------------------------------------------------------------
  FILE NAME: 3084EXA3.DAT
  TIME/DATE OF STUDY: 09:17 05/08/2020
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
  FLOW PROCESS FROM NODE    300.00 TO NODE    300.10 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    90.00
  UPSTREAM ELEVATION(FEET) =    325.60
  DOWNSTREAM ELEVATION(FEET) =    325.10
  ELEVATION DIFFERENCE(FEET) =      0.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =   10.601
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    52.22
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.057
  SUBAREA RUNOFF(CFS) =      0.17
```

```
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.17

****************************************************************************
  FLOW PROCESS FROM NODE    300.10 TO NODE    300.20 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    325.10  DOWNSTREAM(FEET) =    320.10
  CHANNEL LENGTH THRU SUBAREA(FEET) =    96.00   CHANNEL SLOPE =  0.0521
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  50.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   1.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.814
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4300
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       0.30
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.51
  AVERAGE FLOW DEPTH(FEET) =   0.02   TRAVEL TIME(MIN.) =   1.06
  Tc(MIN.) =   11.66
  SUBAREA AREA(ACRES) =     0.15       SUBAREA RUNOFF(CFS) =    0.25
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.430
  TOTAL AREA(ACRES) =        0.2         PEAK FLOW RATE(CFS) =       0.41

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.02   FLOW VELOCITY(FEET/SEC.) =   1.86
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    300.20 =     186.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        0.2  TC(MIN.) =     11.66
  PEAK FLOW RATE(CFS)   =       0.41
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

PRE-DEVELOPMENT CONDITION

```
****************************************************************************

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
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              Ver. 15.0 Release Date: 04/01/2008  License ID 1452

                              Analysis prepared by:

                         PASCO LARET SUITER & ASSOCIATES
                              535 NORTH HIGHWAY 101
                                     SUITE A
                              SOLANA BEACH CA 92705

----------------------------------------------------------------------------
  FILE NAME: 3084EXA4.DAT
  TIME/DATE OF STUDY: 09:20 05/08/2020
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE    400.00 TO NODE    400.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4300
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    75.00
  UPSTREAM ELEVATION(FEET) =    320.00
  DOWNSTREAM ELEVATION(FEET) =    318.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.532
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.057
  SUBAREA RUNOFF(CFS) =      0.22
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.22

****************************************************************************
  FLOW PROCESS FROM NODE    400.10 TO NODE    400.20 IS CODE =  51
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    318.00  DOWNSTREAM(FEET) =    315.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   418.00   CHANNEL SLOPE =  0.0060
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  50.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   1.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.123
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4300
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.98
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.83
  AVERAGE FLOW DEPTH(FEET) =   0.14   TRAVEL TIME(MIN.) =   8.37
  Tc(MIN.) =   15.90
  SUBAREA AREA(ACRES) =     2.54       SUBAREA RUNOFF(CFS) =    3.41
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.430
  TOTAL AREA(ACRES) =        2.6         PEAK FLOW RATE(CFS) =       3.55

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.19   FLOW VELOCITY(FEET/SEC.) =   0.97
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    400.20 =     493.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    400.20 TO NODE    400.20 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.123
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.4300
  SUBAREA AREA(ACRES) =    0.86   SUBAREA RUNOFF(CFS) =    1.15
  TOTAL AREA(ACRES) =        3.5   TOTAL RUNOFF(CFS) =       4.70
  TC(MIN.) =   15.90

****************************************************************************
  FLOW PROCESS FROM NODE    400.20 TO NODE    400.30 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   309.50  DOWNSTREAM(FEET) =   307.20
  FLOW LENGTH(FEET) =   109.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.46
  GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.70
  PIPE TRAVEL TIME(MIN.) =   0.24    Tc(MIN.) =   16.15
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    400.30 =     602.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        3.5  TC(MIN.) =     16.15
  PEAK FLOW RATE(CFS)   =       4.70
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

AES Post-Development Output Report (Unmitigated)

POST-DEVELOPMENT CONDITION (UNMITIGATED)

```
****************************************************************************

           RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                      2003,1985,1981 HYDROLOGY MANUAL
        (c) Copyright 1982-2008 Advanced Engineering Software (aes)
            Ver. 15.0 Release Date: 04/01/2008  License ID 1452

                        Analysis prepared by:

                    PASCO LARET SUITER & ASSOCIATES
                         535 NORTH HIGHWAY 101
                                SUITE A
                         SOLANA BEACH CA 92705

----------------------------------------------------------------------------
 FILE NAME: 3084P00A.DAT
 TIME/DATE OF STUDY: 10:11 05/11/2020
----------------------------------------------------------------------------
 USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
 2003 SAN DIEGO MANUAL CRITERIA

 USER SPECIFIED STORM EVENT(YEAR) = 100.00
 6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
 SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
 SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
 SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
 NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
 *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
    HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
    WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150
  2   12.0      7.0    0.020/0.020/0.020   0.50    1.50 0.0100 0.125 0.0180

 GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
   1. Relative Flow-Depth =  0.00 FEET
      as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
   2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
 *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
  OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
 FLOW PROCESS FROM NODE    100.00 TO NODE    100.10 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .7400
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    61.00
 UPSTREAM ELEVATION(FEET) =    320.73
 DOWNSTREAM ELEVATION(FEET) =    320.10
 ELEVATION DIFFERENCE(FEET) =      0.63
 SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.007
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.581
 SUBAREA RUNOFF(CFS) =      0.73
 TOTAL AREA(ACRES) =      0.15   TOTAL RUNOFF(CFS) =      0.73

****************************************************************************
 FLOW PROCESS FROM NODE    100.10 TO NODE    100.20 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  320.10  DOWNSTREAM ELEVATION(FEET) =  314.97
 STREET LENGTH(FEET) =   457.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 12.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   7.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.82
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.33
   HALFSTREET FLOOD WIDTH(FEET) =   11.26
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.08
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.69
 STREET FLOW TRAVEL TIME(MIN.) =   3.66   Tc(MIN.) =    8.66
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.621
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .7400
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.740
 SUBAREA AREA(ACRES) =    1.21      SUBAREA RUNOFF(CFS) =    4.14
 TOTAL AREA(ACRES) =        1.4        PEAK FLOW RATE(CFS) =       4.65

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  12.00
 FLOW VELOCITY(FEET/SEC.) =  2.17   DEPTH*VELOCITY(FT*FT/SEC.) =   0.75
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.20 =     518.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    100.20 TO NODE    100.30 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   312.47  DOWNSTREAM(FEET) =   311.60
 FLOW LENGTH(FEET) =   127.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  15.0 INCH PIPE IS  11.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.69
 ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       4.65
 PIPE TRAVEL TIME(MIN.) =   0.45    Tc(MIN.) =    9.12
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.30 =     645.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    100.30 TO NODE    100.30 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.472
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .7400
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.7400
```

```
  SUBAREA AREA(ACRES) =    0.34   SUBAREA RUNOFF(CFS) =    1.13
  TOTAL AREA(ACRES) =        1.7   TOTAL RUNOFF(CFS) =       5.63
  TC(MIN.) =    9.12

****************************************************************************
  FLOW PROCESS FROM NODE    100.30 TO NODE    100.30 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.472
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7317
  SUBAREA AREA(ACRES) =    0.04   SUBAREA RUNOFF(CFS) =    0.06
  TOTAL AREA(ACRES) =        1.7   TOTAL RUNOFF(CFS) =       5.68
  TC(MIN.) =    9.12

****************************************************************************
  FLOW PROCESS FROM NODE    100.40 TO NODE    100.50 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   305.10  DOWNSTREAM(FEET) =   304.96
  FLOW LENGTH(FEET) =    22.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.89
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.68
  PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =    9.19
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.50 =     667.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.50 TO NODE    100.70 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   304.96  DOWNSTREAM(FEET) =   303.40
  FLOW LENGTH(FEET) =   308.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  12.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.47
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.68
  PIPE TRAVEL TIME(MIN.) =   1.15    Tc(MIN.) =   10.34
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.70 =     975.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.70 TO NODE    100.70 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    400.00 TO NODE    400.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    321.03
  DOWNSTREAM ELEVATION(FEET) =    320.03
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.224
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.403
  SUBAREA RUNOFF(CFS) =      0.47
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.47

****************************************************************************
  FLOW PROCESS FROM NODE    400.10 TO NODE    400.20 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  320.03  DOWNSTREAM ELEVATION(FEET) =  314.98
  STREET LENGTH(FEET) =   438.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   7.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.18
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   11.75
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.17
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.74
  STREET FLOW TRAVEL TIME(MIN.) =   3.37   Tc(MIN.) =    8.59
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.645
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.740
  SUBAREA AREA(ACRES) =    1.57      SUBAREA RUNOFF(CFS) =    5.40
  TOTAL AREA(ACRES) =        1.7        PEAK FLOW RATE(CFS) =       5.74

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  2.20   DEPTH*VELOCITY(FT*FT/SEC.) =   0.76
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    400.20 =     538.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    400.20 TO NODE    400.30 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   311.98  DOWNSTREAM(FEET) =   310.20
  FLOW LENGTH(FEET) =   129.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS  10.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.51
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.74
```

```
  PIPE TRAVEL TIME(MIN.) =   0.33    Tc(MIN.) =    8.92
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    400.30 =     667.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    400.30 TO NODE    400.30 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.92
  RAINFALL INTENSITY(INCH/HR) =   4.53
  TOTAL STREAM AREA(ACRES) =     1.67
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.74

****************************************************************************
  FLOW PROCESS FROM NODE    400.40 TO NODE    400.50 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   128.00
  UPSTREAM ELEVATION(FEET) =    321.74
  DOWNSTREAM ELEVATION(FEET) =    320.70
  ELEVATION DIFFERENCE(FEET) =      1.04
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.351
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    59.37
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.305
  SUBAREA RUNOFF(CFS) =      0.98
  TOTAL AREA(ACRES) =      0.21   TOTAL RUNOFF(CFS) =      0.98

****************************************************************************
  FLOW PROCESS FROM NODE    400.50 TO NODE    400.60 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  320.70  DOWNSTREAM ELEVATION(FEET) =  314.42
  STREET LENGTH(FEET) =   569.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   7.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL) =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL) =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.15
    ***STREET FLOW SPLITS OVER STREET-CROWN***
    FULL DEPTH(FEET) =    0.35   FLOOD WIDTH(FEET) =   12.00
    FULL HALF-STREET VELOCITY(FEET/SEC.) =    2.15
    SPLIT DEPTH(FEET) =    0.24   SPLIT FLOOD WIDTH(FEET) =    6.78
    SPLIT FLOW(CFS) =    0.86   SPLIT VELOCITY(FEET/SEC.) =    1.58
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
    HALFSTREET FLOOD WIDTH(FEET) =   12.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.15
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.74
  STREET FLOW TRAVEL TIME(MIN.) =   4.41   Tc(MIN.) =    9.76
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.278
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.740
  SUBAREA AREA(ACRES) =    2.00      SUBAREA RUNOFF(CFS) =    6.33
  TOTAL AREA(ACRES) =        2.2        PEAK FLOW RATE(CFS) =       7.00

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  2.20   DEPTH*VELOCITY(FT*FT/SEC.) =   0.77
  LONGEST FLOWPATH FROM NODE    400.40 TO NODE    400.60 =     697.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    400.60 TO NODE    400.70 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   311.42  DOWNSTREAM(FEET) =   310.20
  FLOW LENGTH(FEET) =   130.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.96
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.00
  PIPE TRAVEL TIME(MIN.) =   0.36    Tc(MIN.) =   10.13
  LONGEST FLOWPATH FROM NODE    400.40 TO NODE    400.70 =     827.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    400.30 TO NODE    400.70 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   10.13
  RAINFALL INTENSITY(INCH/HR) =   4.18
  TOTAL STREAM AREA(ACRES) =     2.21
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.00

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER       (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1         5.74     8.92        4.534          1.67
      2         7.00    10.13        4.178          2.21

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc      INTENSITY
  NUMBER       (CFS)     (MIN.)   (INCH/HOUR)
      1        11.91     8.92        4.534
      2        12.29    10.13        4.178

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      12.29   Tc(MIN.) =   10.13
  TOTAL AREA(ACRES) =        3.9
```

```
 LONGEST FLOWPATH FROM NODE    400.40 TO NODE    400.70 =     827.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    400.70 TO NODE    400.70 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.178
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .7400
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.7400
 SUBAREA AREA(ACRES) =    0.68   SUBAREA RUNOFF(CFS) =    2.10
 TOTAL AREA(ACRES) =        4.6   TOTAL RUNOFF(CFS) =      14.10
 TC(MIN.) =   10.13

****************************************************************************
 FLOW PROCESS FROM NODE    400.70 TO NODE    400.70 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.178
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.7325
 SUBAREA AREA(ACRES) =    0.09   SUBAREA RUNOFF(CFS) =    0.13
 TOTAL AREA(ACRES) =        4.7   TOTAL RUNOFF(CFS) =      14.23
 TC(MIN.) =   10.13

****************************************************************************
 FLOW PROCESS FROM NODE    100.60 TO NODE    100.70 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   303.70  DOWNSTREAM(FEET) =   303.40
 FLOW LENGTH(FEET) =    22.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  21.0 INCH PIPE IS  14.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   8.14
 ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      14.23
 PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   10.17
 LONGEST FLOWPATH FROM NODE    400.40 TO NODE    100.70 =     849.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    100.70 TO NODE    100.70 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
 STREAM     RUNOFF      Tc      INTENSITY     AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)   (ACRE)
     1       14.23    10.17       4.166        4.65
 LONGEST FLOWPATH FROM NODE    400.40 TO NODE    100.70 =     849.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
 STREAM     RUNOFF      Tc      INTENSITY     AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)   (ACRE)
     1        5.68    10.34       4.123        1.74
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.70 =     975.00 FEET.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF       Tc      INTENSITY
 NUMBER      (CFS)      (MIN.)   (INCH/HOUR)
     1       19.82      10.17        4.166
     2       19.77      10.34        4.123

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      19.82   Tc(MIN.) =   10.17
 TOTAL AREA(ACRES) =        6.4

****************************************************************************
 FLOW PROCESS FROM NODE    100.70 TO NODE    100.70 IS CODE =  12
----------------------------------------------------------------------------
 >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    100.70 TO NODE    100.90 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   303.40  DOWNSTREAM(FEET) =   301.92
 FLOW LENGTH(FEET) =   291.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  27.0 INCH PIPE IS  20.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   6.01
 ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      19.82
 PIPE TRAVEL TIME(MIN.) =   0.81    Tc(MIN.) =   10.98
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.90 =    1266.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    100.90 TO NODE    100.90 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    500.00 TO NODE    500.10 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .7400
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
 UPSTREAM ELEVATION(FEET) =    322.44
 DOWNSTREAM ELEVATION(FEET) =    321.41
 ELEVATION DIFFERENCE(FEET) =      1.03
 SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.185
 WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
          THE MAXIMUM OVERLAND FLOW LENGTH =    65.30
          (Reference: Table 3-1B of Hydrology Manual)
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.434
 SUBAREA RUNOFF(CFS) =      0.86
 TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.86

****************************************************************************
 FLOW PROCESS FROM NODE    500.10 TO NODE    500.20 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
```

```
==========================================================================
  UPSTREAM ELEVATION(FEET) =  321.41  DOWNSTREAM ELEVATION(FEET) =  314.38
  STREET LENGTH(FEET) =   694.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   7.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.53
    ***STREET FLOW SPLITS OVER STREET-CROWN***
    FULL DEPTH(FEET) =    0.35   FLOOD WIDTH(FEET) =   12.00
    FULL HALF-STREET VELOCITY(FEET/SEC.) =    2.06
    SPLIT DEPTH(FEET) =    0.28   SPLIT FLOOD WIDTH(FEET) =    8.58
    SPLIT FLOW(CFS) =    1.39   SPLIT VELOCITY(FEET/SEC.) =    1.69
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
    HALFSTREET FLOOD WIDTH(FEET) =   12.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.06
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.71
  STREET FLOW TRAVEL TIME(MIN.) =   5.62   Tc(MIN.) =   10.80
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.008
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.740
  SUBAREA AREA(ACRES) =    2.46      SUBAREA RUNOFF(CFS) =    7.30
  TOTAL AREA(ACRES) =        2.6        PEAK FLOW RATE(CFS) =       7.83

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.36   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  2.25   DEPTH*VELOCITY(FT*FT/SEC.) =   0.82
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    500.20 =     794.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    500.20 TO NODE    500.30 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   311.38  DOWNSTREAM(FEET) =   310.20
  FLOW LENGTH(FEET) =   120.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  12.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.21
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =        7.83
  PIPE TRAVEL TIME(MIN.) =   0.32    Tc(MIN.) =   11.12
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    500.30 =     914.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    500.30 TO NODE    500.30 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   11.12
  RAINFALL INTENSITY(INCH/HR) =   3.93
  TOTAL STREAM AREA(ACRES) =     2.64
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.83

****************************************************************************
  FLOW PROCESS FROM NODE    500.40 TO NODE    500.50 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   142.00
  UPSTREAM ELEVATION(FEET) =    321.70
  DOWNSTREAM ELEVATION(FEET) =    320.32
  ELEVATION DIFFERENCE(FEET) =      1.38
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.240
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    64.16
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.391
  SUBAREA RUNOFF(CFS) =      0.52
  TOTAL AREA(ACRES) =      0.11   TOTAL RUNOFF(CFS) =      0.52

****************************************************************************
  FLOW PROCESS FROM NODE    500.50 TO NODE    500.60 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  320.32  DOWNSTREAM ELEVATION(FEET) =  315.05
  STREET LENGTH(FEET) =   449.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   7.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.23
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   11.75
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.20
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.75
  STREET FLOW TRAVEL TIME(MIN.) =   3.40   Tc(MIN.) =    8.64
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.629
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.740
  SUBAREA AREA(ACRES) =    1.58      SUBAREA RUNOFF(CFS) =    5.41
  TOTAL AREA(ACRES) =        1.7        PEAK FLOW RATE(CFS) =       5.79

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  2.22   DEPTH*VELOCITY(FT*FT/SEC.) =   0.76
  LONGEST FLOWPATH FROM NODE    500.40 TO NODE    500.60 =     591.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    500.60 TO NODE    500.70 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   312.05  DOWNSTREAM(FEET) =   310.20
  FLOW LENGTH(FEET) =   129.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS  10.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.64
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.79
  PIPE TRAVEL TIME(MIN.) =   0.32    Tc(MIN.) =    8.96
  LONGEST FLOWPATH FROM NODE    500.40 TO NODE    500.70 =     720.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    500.30 TO NODE    500.70 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.96
  RAINFALL INTENSITY(INCH/HR) =   4.52
  TOTAL STREAM AREA(ACRES) =     1.69
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.79

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        7.83    11.12        3.933          2.64
      2        5.79     8.96        4.520          1.69

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc      INTENSITY
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)
      1       12.10     8.96       4.520
      2       12.87    11.12       3.933

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      12.87   Tc(MIN.) =   11.12
  TOTAL AREA(ACRES) =        4.3
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    500.70 =     914.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    500.70 TO NODE    500.70 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.933
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7400
  SUBAREA AREA(ACRES) =    0.60   SUBAREA RUNOFF(CFS) =    1.75
  TOTAL AREA(ACRES) =        4.9   TOTAL RUNOFF(CFS) =      14.35
  TC(MIN.) =   11.12

****************************************************************************
  FLOW PROCESS FROM NODE    500.70 TO NODE    500.70 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.933
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7322
  SUBAREA AREA(ACRES) =    0.10   SUBAREA RUNOFF(CFS) =    0.14
  TOTAL AREA(ACRES) =        5.0   TOTAL RUNOFF(CFS) =      14.48
  TC(MIN.) =   11.12

****************************************************************************
  FLOW PROCESS FROM NODE    100.80 TO NODE    100.90 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   303.70  DOWNSTREAM(FEET) =   301.92
  FLOW LENGTH(FEET) =    24.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS  10.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.34
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      14.48
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =   11.15
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    100.90 =     938.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.90 TO NODE    100.90 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY     AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)   (ACRE)
      1       14.48    11.15       3.927         5.03
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    100.90 =     938.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY     AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)   (ACRE)
      1       19.82    10.98       3.966         6.39
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.90 =    1266.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      34.08      10.98       3.966
      2      34.11      11.15       3.927

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      34.11   Tc(MIN.) =   11.15
  TOTAL AREA(ACRES) =       11.4

****************************************************************************
  FLOW PROCESS FROM NODE    100.90 TO NODE    100.90 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
```

```
 FLOW PROCESS FROM NODE    100.90 TO NODE    100.11 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   301.92  DOWNSTREAM(FEET) =   300.94
 FLOW LENGTH(FEET) =   193.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  33.0 INCH PIPE IS  25.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   6.87
 ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      34.11
 PIPE TRAVEL TIME(MIN.) =   0.47    Tc(MIN.) =   11.62
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.11 =    1459.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    100.11 TO NODE    100.11 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    700.00 TO NODE    700.10 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .4100
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
 UPSTREAM ELEVATION(FEET) =    322.97
 DOWNSTREAM ELEVATION(FEET) =    321.47
 ELEVATION DIFFERENCE(FEET) =      1.50
 SUBAREA OVERLAND TIME OF FLOW(MIN.) =    9.078
 WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
          THE MAXIMUM OVERLAND FLOW LENGTH =    70.00
          (Reference: Table 3-1B of Hydrology Manual)
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.483
 SUBAREA RUNOFF(CFS) =      0.55
 TOTAL AREA(ACRES) =      0.30   TOTAL RUNOFF(CFS) =      0.55

****************************************************************************
 FLOW PROCESS FROM NODE    700.10 TO NODE    700.20 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  321.47  DOWNSTREAM ELEVATION(FEET) =  315.74
 STREET LENGTH(FEET) =   509.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 12.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   7.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.28
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.27
   HALFSTREET FLOOD WIDTH(FEET) =    8.09
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.73
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.46
 STREET FLOW TRAVEL TIME(MIN.) =   4.90   Tc(MIN.) =   13.98
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.394
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .4100
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.410
 SUBAREA AREA(ACRES) =    1.04      SUBAREA RUNOFF(CFS) =    1.45
 TOTAL AREA(ACRES) =        1.3        PEAK FLOW RATE(CFS) =       1.86

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.29   HALFSTREET FLOOD WIDTH(FEET) =   9.46
 FLOW VELOCITY(FEET/SEC.) =  1.90   DEPTH*VELOCITY(FT*FT/SEC.) =   0.56
 LONGEST FLOWPATH FROM NODE    700.00 TO NODE    700.20 =     609.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    700.20 TO NODE    700.30 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   313.24  DOWNSTREAM(FEET) =   311.80
 FLOW LENGTH(FEET) =   118.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.75
 ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.86
 PIPE TRAVEL TIME(MIN.) =   0.41    Tc(MIN.) =   14.39
 LONGEST FLOWPATH FROM NODE    700.00 TO NODE    700.30 =     727.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    700.30 TO NODE    700.30 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.331
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .4100
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.4100
 SUBAREA AREA(ACRES) =    4.94   SUBAREA RUNOFF(CFS) =    6.75
 TOTAL AREA(ACRES) =        6.3   TOTAL RUNOFF(CFS) =       8.58
 TC(MIN.) =   14.39

****************************************************************************
 FLOW PROCESS FROM NODE    700.30 TO NODE    700.30 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.331
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.4096
 SUBAREA AREA(ACRES) =    0.04   SUBAREA RUNOFF(CFS) =    0.05
 TOTAL AREA(ACRES) =        6.3   TOTAL RUNOFF(CFS) =       8.62
 TC(MIN.) =   14.39

****************************************************************************
 FLOW PROCESS FROM NODE    100.10 TO NODE    100.11 IS CODE =  31
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   305.30  DOWNSTREAM(FEET) =   300.94
  FLOW LENGTH(FEET) =    10.50   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   6.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  25.76
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       8.62
  PIPE TRAVEL TIME(MIN.) =   0.01    Tc(MIN.) =   14.40
  LONGEST FLOWPATH FROM NODE    700.00 TO NODE    100.11 =     737.50 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.11 TO NODE    100.11 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM      RUNOFF       Tc       INTENSITY      AREA
  NUMBER       (CFS)     (MIN.)    (INCH/HOUR)    (ACRE)
      1         8.62    14.40        3.330         6.32
  LONGEST FLOWPATH FROM NODE    700.00 TO NODE    100.11 =     737.50 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM      RUNOFF       Tc       INTENSITY      AREA
  NUMBER       (CFS)     (MIN.)    (INCH/HOUR)    (ACRE)
      1        34.11    11.62        3.824        11.42
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.11 =    1459.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc       INTENSITY
  NUMBER      (CFS)      (MIN.)    (INCH/HOUR)
      1       41.07      11.62        3.824
      2       38.32      14.40        3.330

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       41.07   Tc(MIN.) =   11.62
  TOTAL AREA(ACRES) =       17.7

****************************************************************************
  FLOW PROCESS FROM NODE    100.11 TO NODE    100.11 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    100.11 TO NODE    100.12 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   300.94  DOWNSTREAM(FEET) =   300.80
  FLOW LENGTH(FEET) =    24.90   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  25.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.58
  ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      41.07
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   11.67
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.12 =    1483.90 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.12 TO NODE    100.12 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    600.00 TO NODE    600.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7600
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   144.00
  UPSTREAM ELEVATION(FEET) =    322.44
  DOWNSTREAM ELEVATION(FEET) =    320.95
  ELEVATION DIFFERENCE(FEET) =      1.49
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.891
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.35
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.35
  TOTAL AREA(ACRES) =      0.27   TOTAL RUNOFF(CFS) =      1.35

****************************************************************************
  FLOW PROCESS FROM NODE    600.10 TO NODE    600.20 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    320.95  DOWNSTREAM(FEET) =    317.90
  CHANNEL LENGTH THRU SUBAREA(FEET) =   100.00   CHANNEL SLOPE =  0.0305
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.018   MAXIMUM DEPTH(FEET) =   1.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.230
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7600
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.16
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.98
  AVERAGE FLOW DEPTH(FEET) =   0.12   TRAVEL TIME(MIN.) =   0.56
  Tc(MIN.) =    5.45
  SUBAREA AREA(ACRES) =     0.34       SUBAREA RUNOFF(CFS) =    1.61
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.760
  TOTAL AREA(ACRES) =        0.6         PEAK FLOW RATE(CFS) =       2.89

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.13   FLOW VELOCITY(FEET/SEC.) =   3.39
  LONGEST FLOWPATH FROM NODE    600.00 TO NODE    600.20 =     244.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    600.20 TO NODE    600.20 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.230
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7534
  SUBAREA AREA(ACRES) =    0.01   SUBAREA RUNOFF(CFS) =    0.02
```

```
 TOTAL AREA(ACRES) =        0.6   TOTAL RUNOFF(CFS) =       2.91
 TC(MIN.) =    5.45

****************************************************************************
 FLOW PROCESS FROM NODE    600.20 TO NODE    600.30 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   313.40  DOWNSTREAM(FEET) =   305.30
 FLOW LENGTH(FEET) =   274.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   7.42
 ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       2.91
 PIPE TRAVEL TIME(MIN.) =   0.62    Tc(MIN.) =    6.07
 LONGEST FLOWPATH FROM NODE    600.00 TO NODE    600.30 =     518.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    600.30 TO NODE    600.40 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   310.35  DOWNSTREAM(FEET) =   307.69
 FLOW LENGTH(FEET) =   266.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  12.0 INCH PIPE IS   8.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.85
 ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       2.91
 PIPE TRAVEL TIME(MIN.) =   0.91    Tc(MIN.) =    6.98
 LONGEST FLOWPATH FROM NODE    600.00 TO NODE    600.40 =     784.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    600.40 TO NODE    100.12 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
 STREAM     RUNOFF      Tc      INTENSITY     AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)   (ACRE)
    1         2.91      6.98       5.312        0.62
 LONGEST FLOWPATH FROM NODE    600.00 TO NODE    100.12 =     784.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
 STREAM     RUNOFF      Tc      INTENSITY     AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)   (ACRE)
    1        41.07    11.67       3.812       17.74
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.12 =    1483.90 FEET.

 ** PEAK FLOW RATE TABLE **
 STREAM    RUNOFF       Tc      INTENSITY
 NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
    1       27.47       6.98        5.312
    2       43.16      11.67        3.812

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      43.16   Tc(MIN.) =   11.67
 TOTAL AREA(ACRES) =       18.4

****************************************************************************
 FLOW PROCESS FROM NODE    100.12 TO NODE    100.12 IS CODE =  12
----------------------------------------------------------------------------
 >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    100.13 TO NODE    100.14 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   297.80  DOWNSTREAM(FEET) =   293.86
 FLOW LENGTH(FEET) =   184.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  30.0 INCH PIPE IS  19.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  12.78
 ESTIMATED PIPE DIAMETER(INCH) =  30.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      43.16
 PIPE TRAVEL TIME(MIN.) =   0.24    Tc(MIN.) =   11.91
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.14 =    1667.90 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    100.14 TO NODE    100.15 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   293.86  DOWNSTREAM(FEET) =   290.67
 FLOW LENGTH(FEET) =    53.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  18.73
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      43.16
 PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   11.96
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.15 =    1720.90 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    100.15 TO NODE    100.16 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   290.67  DOWNSTREAM(FEET) =   289.20
 FLOW LENGTH(FEET) =    25.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  18.56
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      43.16
 PIPE TRAVEL TIME(MIN.) =   0.02    Tc(MIN.) =   11.98
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.16 =    1745.90 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =       18.4  TC(MIN.) =     11.98
 PEAK FLOW RATE(CFS)   =      43.16
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

POST-DEVELOPMENT CONDITION (UNMITIGATED)

```
****************************************************************************

          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
          Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                       2003,1985,1981 HYDROLOGY MANUAL
        (c) Copyright 1982-2016 Advanced Engineering Software (aes)
            Ver. 23.0 Release Date: 07/01/2016  License ID 1452

                        Analysis prepared by:

                    PASCO LARET SUITER & ASSOCIATES
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                         SOLANA BEACH, CA 92075
                              858-259-8212

 ************************* DESCRIPTION OF STUDY *************************
* 3084   Fox Point                                                        *
* Proposed Condition                                                      *
* 100-yr                                                                 *
 ****************************************************************************

  FILE NAME: 3084P00B.DAT
  TIME/DATE OF STUDY: 11:33 07/22/2020
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150
  2   12.0      7.0    0.020/0.020/0.020   0.50    1.50 0.0100 0.125 0.0180

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    200.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   124.00
  UPSTREAM ELEVATION(FEET) =    319.55
  DOWNSTREAM ELEVATION(FEET) =    318.90
  ELEVATION DIFFERENCE(FEET) =      0.65
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.155
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    50.73
```



```
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.228
  SUBAREA RUNOFF(CFS) =      1.46
  TOTAL AREA(ACRES) =      0.43   TOTAL RUNOFF(CFS) =      1.46

****************************************************************************
  FLOW PROCESS FROM NODE    200.10 TO NODE    200.10 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.228
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6432
  SUBAREA AREA(ACRES) =    0.01   SUBAREA RUNOFF(CFS) =    0.02
  TOTAL AREA(ACRES) =       0.4   TOTAL RUNOFF(CFS) =      1.48
  TC(MIN.) =    7.15

****************************************************************************
  FLOW PROCESS FROM NODE    200.10 TO NODE    200.20 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   311.60  DOWNSTREAM(FEET) =   311.24
  FLOW LENGTH(FEET) =    24.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.80
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.48
  PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =    7.24
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    200.20 =     148.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    200.20 TO NODE    200.30 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   311.24  DOWNSTREAM(FEET) =   308.38
  FLOW LENGTH(FEET) =   191.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.80
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.48
  PIPE TRAVEL TIME(MIN.) =   0.66    Tc(MIN.) =    7.90
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    200.30 =     339.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    200.30 TO NODE    200.40 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   308.38  DOWNSTREAM(FEET) =   307.66
  FLOW LENGTH(FEET) =    48.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.80
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.48
  PIPE TRAVEL TIME(MIN.) =   0.17    Tc(MIN.) =    8.07
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    200.40 =     387.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    200.40 TO NODE    200.40 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.07
  RAINFALL INTENSITY(INCH/HR) =   4.84
  TOTAL STREAM AREA(ACRES) =     0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.48

****************************************************************************
  FLOW PROCESS FROM NODE    300.00 TO NODE    300.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    320.02
  DOWNSTREAM ELEVATION(FEET) =    319.02
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.530
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.545
  SUBAREA RUNOFF(CFS) =      0.61
  TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.61

****************************************************************************
  FLOW PROCESS FROM NODE    300.10 TO NODE    300.20 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    319.02  DOWNSTREAM(FEET) =    318.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   136.00   CHANNEL SLOPE =  0.0038
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.250
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.903
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.27
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.65
  AVERAGE FLOW DEPTH(FEET) =   0.15   TRAVEL TIME(MIN.) =   1.37
  Tc(MIN.) =    7.90
  SUBAREA AREA(ACRES) =     0.41       SUBAREA RUNOFF(CFS) =    1.31
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.650
  TOTAL AREA(ACRES) =        0.6         PEAK FLOW RATE(CFS) =       1.85

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.19   FLOW VELOCITY(FEET/SEC.) =   1.90
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    300.20 =     236.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    300.20 TO NODE    300.20 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.903
```



```
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6449
  SUBAREA AREA(ACRES) =    0.01   SUBAREA RUNOFF(CFS) =    0.02
  TOTAL AREA(ACRES) =        0.6   TOTAL RUNOFF(CFS) =       1.87
  TC(MIN.) =    7.90

****************************************************************************
  FLOW PROCESS FROM NODE    300.20 TO NODE    200.40 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   313.80  DOWNSTREAM(FEET) =   307.66
  FLOW LENGTH(FEET) =    12.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   6.0 INCH PIPE IS   3.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.29
  ESTIMATED PIPE DIAMETER(INCH) =   6.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.87
  PIPE TRAVEL TIME(MIN.) =   0.01    Tc(MIN.) =    7.91
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    200.40 =     248.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    200.40 TO NODE    200.40 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.91
  RAINFALL INTENSITY(INCH/HR) =   4.90
  TOTAL STREAM AREA(ACRES) =     0.59
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.87

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        1.48     8.07        4.838          0.44
      2        1.87     7.91        4.899          0.59

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc      INTENSITY
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)
      1        3.32     7.91        4.899
      2        3.32     8.07        4.838

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.32   Tc(MIN.) =    8.07
  TOTAL AREA(ACRES) =        1.0
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    200.40 =     387.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    200.40 TO NODE    200.50 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   307.66  DOWNSTREAM(FEET) =   307.20
  FLOW LENGTH(FEET) =    16.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.6 INCHES
```

```
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.57
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.32
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    8.10
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    200.50 =     403.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.0  TC(MIN.) =      8.10
  PEAK FLOW RATE(CFS)   =       3.32
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

AES Post-Development Output Report (Mitigated)

POST-DEVELOPMENT CONDITION (MITIGATED)

```
**************************************************************************

           RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                        2003,1985,1981 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
             Ver. 23.0 Release Date: 07/01/2016  License ID 1452

                          Analysis prepared by:

                      PASCO LARET SUITER & ASSOCIATES
                        535 NORTH HIGHWAY 101, STE A
                           SOLANA BEACH, CA 92075
                                858-259-8212

 ************************* DESCRIPTION OF STUDY *************************
* 3084 Fox Point                                                         *
* Proposed Condition    Detained                                         *
* 100-yr                                                                 *
 **************************************************************************

  FILE NAME: 3084PDA.DAT
  TIME/DATE OF STUDY: 14:56 07/22/2020
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150
  2   12.0      7.0    0.020/0.020/0.020   0.50    1.50 0.0100 0.125 0.0180

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    100.10 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    61.00
  UPSTREAM ELEVATION(FEET) =    320.73
  DOWNSTREAM ELEVATION(FEET) =    320.10
  ELEVATION DIFFERENCE(FEET) =      0.63
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.007
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.581
  SUBAREA RUNOFF(CFS) =      0.73
```



```
  TOTAL AREA(ACRES) =      0.15   TOTAL RUNOFF(CFS) =      0.73

**************************************************************************
  FLOW PROCESS FROM NODE    100.10 TO NODE    100.20 IS CODE =  62
--------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
==========================================================================
  UPSTREAM ELEVATION(FEET) =  320.10  DOWNSTREAM ELEVATION(FEET) =  314.97
  STREET LENGTH(FEET) =   457.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   7.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL) =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL) =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.82
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.33
    HALFSTREET FLOOD WIDTH(FEET) =   11.26
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.08
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.69
  STREET FLOW TRAVEL TIME(MIN.) =   3.66   Tc(MIN.) =    8.66
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.621
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.740
  SUBAREA AREA(ACRES) =    1.21      SUBAREA RUNOFF(CFS) =    4.14
  TOTAL AREA(ACRES) =        1.4        PEAK FLOW RATE(CFS) =       4.65

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  2.17   DEPTH*VELOCITY(FT*FT/SEC.) =   0.75
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.20 =     518.00 FEET.

**************************************************************************
  FLOW PROCESS FROM NODE    100.20 TO NODE    100.30 IS CODE =  31
--------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   312.47  DOWNSTREAM(FEET) =   311.60
  FLOW LENGTH(FEET) =   127.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS  11.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.69
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.65
  PIPE TRAVEL TIME(MIN.) =   0.45    Tc(MIN.) =    9.12
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.30 =     645.00 FEET.

**************************************************************************
  FLOW PROCESS FROM NODE    100.30 TO NODE    100.30 IS CODE =  81
--------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.472
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
```

```
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7400
  SUBAREA AREA(ACRES) =    0.34   SUBAREA RUNOFF(CFS) =    1.13
  TOTAL AREA(ACRES) =        1.7   TOTAL RUNOFF(CFS) =       5.63
  TC(MIN.) =    9.12

****************************************************************************
  FLOW PROCESS FROM NODE    100.30 TO NODE    100.30 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.472
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7317
  SUBAREA AREA(ACRES) =    0.04   SUBAREA RUNOFF(CFS) =    0.06
  TOTAL AREA(ACRES) =        1.7   TOTAL RUNOFF(CFS) =       5.68
  TC(MIN.) =    9.12

****************************************************************************
  FLOW PROCESS FROM NODE    100.40 TO NODE    100.40 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =  13.92   RAIN INTENSITY(INCH/HOUR) =  3.40
  TOTAL AREA(ACRES) =     1.70   TOTAL RUNOFF(CFS) =      0.75

****************************************************************************
  FLOW PROCESS FROM NODE    100.40 TO NODE    100.50 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   305.10  DOWNSTREAM(FEET) =   304.96
  FLOW LENGTH(FEET) =    22.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   2.95
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.75
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =   14.04
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.50 =     667.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.50 TO NODE    100.70 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   304.96  DOWNSTREAM(FEET) =   303.40
  FLOW LENGTH(FEET) =   308.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   2.72
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.75
  PIPE TRAVEL TIME(MIN.) =   1.89    Tc(MIN.) =   15.93
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.70 =     975.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.70 TO NODE    100.70 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
```



```
  FLOW PROCESS FROM NODE    400.00 TO NODE    400.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    321.03
  DOWNSTREAM ELEVATION(FEET) =    320.03
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.224
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.403
  SUBAREA RUNOFF(CFS) =      0.47
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.47

****************************************************************************
  FLOW PROCESS FROM NODE    400.10 TO NODE    400.20 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  320.03  DOWNSTREAM ELEVATION(FEET) =  314.98
  STREET LENGTH(FEET) =   438.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   7.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.18
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   11.75
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.17
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.74
  STREET FLOW TRAVEL TIME(MIN.) =   3.37   Tc(MIN.) =    8.59
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.645
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.740
  SUBAREA AREA(ACRES) =    1.57      SUBAREA RUNOFF(CFS) =    5.40
  TOTAL AREA(ACRES) =        1.7        PEAK FLOW RATE(CFS) =       5.74

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  2.20   DEPTH*VELOCITY(FT*FT/SEC.) =   0.76
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    400.20 =     538.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    400.20 TO NODE    400.30 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =   311.98  DOWNSTREAM(FEET) =   310.20
  FLOW LENGTH(FEET) =   129.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS  10.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.51
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.74
  PIPE TRAVEL TIME(MIN.) =   0.33    Tc(MIN.) =    8.92
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    400.30 =     667.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    400.30 TO NODE    400.30 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.92
  RAINFALL INTENSITY(INCH/HR) =   4.53
  TOTAL STREAM AREA(ACRES) =     1.67
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.74

****************************************************************************
  FLOW PROCESS FROM NODE    400.40 TO NODE    400.50 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   128.00
  UPSTREAM ELEVATION(FEET) =    321.74
  DOWNSTREAM ELEVATION(FEET) =    320.70
  ELEVATION DIFFERENCE(FEET) =      1.04
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.351
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    59.37
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.305
  SUBAREA RUNOFF(CFS) =      0.98
  TOTAL AREA(ACRES) =      0.21   TOTAL RUNOFF(CFS) =      0.98

****************************************************************************
  FLOW PROCESS FROM NODE    400.50 TO NODE    400.60 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  320.70  DOWNSTREAM ELEVATION(FEET) =  314.42
  STREET LENGTH(FEET) =   569.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   7.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.15
    ***STREET FLOW SPLITS OVER STREET-CROWN***
    FULL DEPTH(FEET) =    0.35   FLOOD WIDTH(FEET) =   12.00
    FULL HALF-STREET VELOCITY(FEET/SEC.) =    2.15
```



```
    SPLIT DEPTH(FEET) =    0.24   SPLIT FLOOD WIDTH(FEET) =    6.78
    SPLIT FLOW(CFS) =    0.86   SPLIT VELOCITY(FEET/SEC.) =    1.58
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
    HALFSTREET FLOOD WIDTH(FEET) =   12.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.15
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.74
  STREET FLOW TRAVEL TIME(MIN.) =   4.41   Tc(MIN.) =    9.76
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.278
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.740
  SUBAREA AREA(ACRES) =    2.00      SUBAREA RUNOFF(CFS) =    6.33
  TOTAL AREA(ACRES) =        2.2        PEAK FLOW RATE(CFS) =       7.00

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  2.20   DEPTH*VELOCITY(FT*FT/SEC.) =   0.77
  LONGEST FLOWPATH FROM NODE    400.40 TO NODE    400.60 =     697.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    400.60 TO NODE    400.70 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   311.42  DOWNSTREAM(FEET) =   310.20
  FLOW LENGTH(FEET) =   130.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.96
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.00
  PIPE TRAVEL TIME(MIN.) =   0.36    Tc(MIN.) =   10.13
  LONGEST FLOWPATH FROM NODE    400.40 TO NODE    400.70 =     827.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    400.30 TO NODE    400.70 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   10.13
  RAINFALL INTENSITY(INCH/HR) =   4.18
  TOTAL STREAM AREA(ACRES) =     2.21
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.00

  ** CONFLUENCE DATA **
  STREAM      RUNOFF        Tc       INTENSITY       AREA
  NUMBER       (CFS)      (MIN.)    (INCH/HOUR)     (ACRE)
      1         5.74      8.92         4.534          1.67
      2         7.00     10.13         4.178          2.21

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM      RUNOFF       Tc       INTENSITY
  NUMBER       (CFS)     (MIN.)    (INCH/HOUR)
      1        11.91      8.92         4.534
      2        12.29     10.13         4.178

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
```

```
  PEAK FLOW RATE(CFS) =      12.29   Tc(MIN.) =   10.13
  TOTAL AREA(ACRES) =        3.9
  LONGEST FLOWPATH FROM NODE    400.40 TO NODE    400.70 =     827.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    400.70 TO NODE    400.70 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.178
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7400
  SUBAREA AREA(ACRES) =    0.68   SUBAREA RUNOFF(CFS) =    2.10
  TOTAL AREA(ACRES) =        4.6   TOTAL RUNOFF(CFS) =     14.10
  TC(MIN.) =   10.13

****************************************************************************
  FLOW PROCESS FROM NODE    400.70 TO NODE    400.70 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.178
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7325
  SUBAREA AREA(ACRES) =    0.09   SUBAREA RUNOFF(CFS) =    0.13
  TOTAL AREA(ACRES) =        4.7   TOTAL RUNOFF(CFS) =     14.23
  TC(MIN.) =   10.13

****************************************************************************
  FLOW PROCESS FROM NODE    100.60 TO NODE    100.60 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =  19.53   RAIN INTENSITY(INCH/HOUR) =  2.74
  TOTAL AREA(ACRES) =     4.70   TOTAL RUNOFF(CFS) =     0.96

****************************************************************************
  FLOW PROCESS FROM NODE    100.60 TO NODE    100.70 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   303.70  DOWNSTREAM(FEET) =   303.40
  FLOW LENGTH(FEET) =    22.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   4.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.21
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.96
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   19.62
  LONGEST FLOWPATH FROM NODE    400.40 TO NODE    100.70 =     849.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.70 TO NODE    100.70 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)   (ACRE)
```



```
      1        0.96    19.62       2.727        4.70
  LONGEST FLOWPATH FROM NODE    400.40 TO NODE    100.70 =     849.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)   (ACRE)
      1        0.75    15.93       3.119        1.70
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.70 =     975.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc       INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1       1.53      15.93       3.119
      2       1.62      19.62       2.727

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       1.62   Tc(MIN.) =   19.62
  TOTAL AREA(ACRES) =        6.4

****************************************************************************
  FLOW PROCESS FROM NODE    100.70 TO NODE    100.70 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    100.70 TO NODE    100.90 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   303.40  DOWNSTREAM(FEET) =   301.92
  FLOW LENGTH(FEET) =   291.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   7.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.29
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.62
  PIPE TRAVEL TIME(MIN.) =   1.47    Tc(MIN.) =   21.09
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.90 =    1266.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.90 TO NODE    100.90 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    500.00 TO NODE    500.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    322.44
  DOWNSTREAM ELEVATION(FEET) =    321.41
  ELEVATION DIFFERENCE(FEET) =      1.03
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.185
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.30
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.434
  SUBAREA RUNOFF(CFS) =      0.86
```

```
  TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.86

****************************************************************************
  FLOW PROCESS FROM NODE    500.10 TO NODE    500.20 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  321.41  DOWNSTREAM ELEVATION(FEET) =  314.38
  STREET LENGTH(FEET) =   694.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   7.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.53
    ***STREET FLOW SPLITS OVER STREET-CROWN***
    FULL DEPTH(FEET) =    0.35   FLOOD WIDTH(FEET) =   12.00
    FULL HALF-STREET VELOCITY(FEET/SEC.) =    2.06
    SPLIT DEPTH(FEET) =    0.28   SPLIT FLOOD WIDTH(FEET) =    8.58
    SPLIT FLOW(CFS) =    1.39   SPLIT VELOCITY(FEET/SEC.) =    1.69
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
    HALFSTREET FLOOD WIDTH(FEET) =   12.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.06
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.71
  STREET FLOW TRAVEL TIME(MIN.) =   5.62   Tc(MIN.) =   10.80
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.008
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.740
  SUBAREA AREA(ACRES) =    2.46      SUBAREA RUNOFF(CFS) =    7.30
  TOTAL AREA(ACRES) =        2.6        PEAK FLOW RATE(CFS) =       7.83

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.36   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  2.25   DEPTH*VELOCITY(FT*FT/SEC.) =   0.82
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    500.20 =     794.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    500.20 TO NODE    500.30 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   311.38  DOWNSTREAM(FEET) =   310.20
  FLOW LENGTH(FEET) =   120.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  12.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.21
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.83
  PIPE TRAVEL TIME(MIN.) =   0.32    Tc(MIN.) =   11.12
  LONGEST FLOWPATH FROM NODE    500.00 TO NODE    500.30 =     914.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    500.30 TO NODE    500.30 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
```



```
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   11.12
  RAINFALL INTENSITY(INCH/HR) =   3.93
  TOTAL STREAM AREA(ACRES) =     2.64
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      7.83

****************************************************************************
  FLOW PROCESS FROM NODE    500.40 TO NODE    500.50 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   142.00
  UPSTREAM ELEVATION(FEET) =    321.70
  DOWNSTREAM ELEVATION(FEET) =    320.32
  ELEVATION DIFFERENCE(FEET) =      1.38
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.240
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    64.16
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.391
  SUBAREA RUNOFF(CFS) =      0.52
  TOTAL AREA(ACRES) =      0.11   TOTAL RUNOFF(CFS) =      0.52

****************************************************************************
  FLOW PROCESS FROM NODE    500.50 TO NODE    500.60 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  320.32  DOWNSTREAM ELEVATION(FEET) =  315.05
  STREET LENGTH(FEET) =   449.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   7.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.23
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   11.75
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.20
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.75
  STREET FLOW TRAVEL TIME(MIN.) =   3.40   Tc(MIN.) =    8.64
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.629
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7400
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.740
  SUBAREA AREA(ACRES) =    1.58      SUBAREA RUNOFF(CFS) =    5.41
  TOTAL AREA(ACRES) =        1.7        PEAK FLOW RATE(CFS) =       5.79

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  12.00
```

```
 FLOW VELOCITY(FEET/SEC.) =  2.22   DEPTH*VELOCITY(FT*FT/SEC.) =   0.76
 LONGEST FLOWPATH FROM NODE    500.40 TO NODE    500.60 =     591.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    500.60 TO NODE    500.70 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   312.05  DOWNSTREAM(FEET) =   310.20
 FLOW LENGTH(FEET) =   129.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  15.0 INCH PIPE IS  10.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   6.64
 ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       5.79
 PIPE TRAVEL TIME(MIN.) =   0.32    Tc(MIN.) =    8.96
 LONGEST FLOWPATH FROM NODE    500.40 TO NODE    500.70 =     720.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    500.30 TO NODE    500.70 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =    8.96
 RAINFALL INTENSITY(INCH/HR) =   4.52
 TOTAL STREAM AREA(ACRES) =     1.69
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.79

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)    (INCH/HOUR)    (ACRE)
     1        7.83    11.12         3.933          2.64
     2        5.79     8.96         4.520          1.69

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF       Tc      INTENSITY
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)
     1       12.10     8.96        4.520
     2       12.87    11.12        3.933

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      12.87   Tc(MIN.) =   11.12
 TOTAL AREA(ACRES) =         4.3
 LONGEST FLOWPATH FROM NODE    500.00 TO NODE    500.70 =     914.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    500.70 TO NODE    500.70 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.933
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .7400
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.7400
 SUBAREA AREA(ACRES) =    0.60   SUBAREA RUNOFF(CFS) =    1.75
 TOTAL AREA(ACRES) =        4.9   TOTAL RUNOFF(CFS) =      14.35
 TC(MIN.) =   11.12
```



```
****************************************************************************
 FLOW PROCESS FROM NODE    500.70 TO NODE    500.70 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.933
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.7322
 SUBAREA AREA(ACRES) =    0.10   SUBAREA RUNOFF(CFS) =    0.14
 TOTAL AREA(ACRES) =        5.0   TOTAL RUNOFF(CFS) =      14.48
 TC(MIN.) =   11.12

****************************************************************************
 FLOW PROCESS FROM NODE    100.80 TO NODE    100.80 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN) =  21.92   RAIN INTENSITY(INCH/HOUR) =  2.54
 TOTAL AREA(ACRES) =     5.03   TOTAL RUNOFF(CFS) =      0.90

****************************************************************************
 FLOW PROCESS FROM NODE    100.80 TO NODE    100.90 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   303.70  DOWNSTREAM(FEET) =   301.92
 FLOW LENGTH(FEET) =    24.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN   6.0 INCH PIPE IS   3.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   7.82
 ESTIMATED PIPE DIAMETER(INCH) =   6.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =        0.90
 PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   21.97
 LONGEST FLOWPATH FROM NODE    500.00 TO NODE    100.90 =     938.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    100.90 TO NODE    100.90 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY     AREA
 NUMBER      (CFS)     (MIN.)    (INCH/HOUR)   (ACRE)
     1        0.90    21.97        2.535         5.03
 LONGEST FLOWPATH FROM NODE    500.00 TO NODE    100.90 =     938.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY     AREA
 NUMBER      (CFS)     (MIN.)    (INCH/HOUR)   (ACRE)
     1        1.62    21.09        2.603         6.40
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.90 =    1266.00 FEET.

 ** PEAK FLOW RATE TABLE **
 STREAM    RUNOFF       Tc      INTENSITY
 NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
     1       2.48     21.09        2.603
     2       2.47     21.97        2.535

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =       2.48   Tc(MIN.) =   21.09
 TOTAL AREA(ACRES) =       11.4
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    100.90 TO NODE    100.90 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    100.90 TO NODE    100.11 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   301.92  DOWNSTREAM(FEET) =   300.94
  FLOW LENGTH(FEET) =   193.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS   8.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.67
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.48
  PIPE TRAVEL TIME(MIN.) =   0.88    Tc(MIN.) =   21.97
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.11 =    1459.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.11 TO NODE    100.11 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    700.00 TO NODE    700.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4100
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    322.97
  DOWNSTREAM ELEVATION(FEET) =    321.47
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    9.078
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    70.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.483
  SUBAREA RUNOFF(CFS) =      0.55
  TOTAL AREA(ACRES) =      0.30   TOTAL RUNOFF(CFS) =      0.55

****************************************************************************
  FLOW PROCESS FROM NODE    700.10 TO NODE    700.20 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  321.47  DOWNSTREAM ELEVATION(FEET) =  315.74
  STREET LENGTH(FEET) =   509.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   7.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
```



```
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.28
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.27
    HALFSTREET FLOOD WIDTH(FEET) =    8.09
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.73
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.46
  STREET FLOW TRAVEL TIME(MIN.) =   4.90   Tc(MIN.) =   13.98
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.394
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4100
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.410
  SUBAREA AREA(ACRES) =    1.04      SUBAREA RUNOFF(CFS) =    1.45
  TOTAL AREA(ACRES) =        1.3        PEAK FLOW RATE(CFS) =       1.86

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.29   HALFSTREET FLOOD WIDTH(FEET) =   9.46
  FLOW VELOCITY(FEET/SEC.) =  1.90   DEPTH*VELOCITY(FT*FT/SEC.) =   0.56
  LONGEST FLOWPATH FROM NODE    700.00 TO NODE    700.20 =     609.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    700.20 TO NODE    700.30 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   313.24  DOWNSTREAM(FEET) =   311.80
  FLOW LENGTH(FEET) =   118.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.75
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.86
  PIPE TRAVEL TIME(MIN.) =   0.41    Tc(MIN.) =   14.39
  LONGEST FLOWPATH FROM NODE    700.00 TO NODE    700.30 =     727.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    700.30 TO NODE    700.30 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.331
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4100
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.4100
  SUBAREA AREA(ACRES) =    4.94   SUBAREA RUNOFF(CFS) =    6.75
  TOTAL AREA(ACRES) =        6.3   TOTAL RUNOFF(CFS) =       8.58
  TC(MIN.) =   14.39

****************************************************************************
  FLOW PROCESS FROM NODE    700.30 TO NODE    700.30 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.331
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.4096
  SUBAREA AREA(ACRES) =    0.04   SUBAREA RUNOFF(CFS) =    0.05
  TOTAL AREA(ACRES) =        6.3   TOTAL RUNOFF(CFS) =       8.62
  TC(MIN.) =   14.39
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    100.10 TO NODE    100.10 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN) =  20.89   RAIN INTENSITY(INCH/HOUR) =  2.62
 TOTAL AREA(ACRES) =     6.32   TOTAL RUNOFF(CFS) =      5.28

****************************************************************************
 FLOW PROCESS FROM NODE    100.10 TO NODE    100.11 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   305.30  DOWNSTREAM(FEET) =   300.94
 FLOW LENGTH(FEET) =    10.50   MANNING'S N =  0.013
 DEPTH OF FLOW IN   9.0 INCH PIPE IS   4.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  23.18
 ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       5.28
 PIPE TRAVEL TIME(MIN.) =   0.01    Tc(MIN.) =   20.90
 LONGEST FLOWPATH FROM NODE    700.00 TO NODE    100.11 =     737.50 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    100.11 TO NODE    100.11 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
 STREAM     RUNOFF      Tc      INTENSITY     AREA
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
     1        5.28    20.90       2.618        6.32
 LONGEST FLOWPATH FROM NODE    700.00 TO NODE    100.11 =     737.50 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
 STREAM     RUNOFF      Tc      INTENSITY     AREA
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
     1        2.48    21.97       2.536       11.43
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.11 =    1459.00 FEET.

 ** PEAK FLOW RATE TABLE **
 STREAM    RUNOFF       Tc      INTENSITY
 NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
     1       7.64      20.90       2.618
     2       7.59      21.97       2.536

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =       7.64   Tc(MIN.) =   20.90
 TOTAL AREA(ACRES) =       17.8

****************************************************************************
 FLOW PROCESS FROM NODE    100.11 TO NODE    100.11 IS CODE =  12
----------------------------------------------------------------------------
 >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    100.11 TO NODE    100.12 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
```



```
 ELEVATION DATA: UPSTREAM(FEET) =   300.94  DOWNSTREAM(FEET) =   300.80
 FLOW LENGTH(FEET) =    24.90   MANNING'S N =  0.013
 DEPTH OF FLOW IN  21.0 INCH PIPE IS  12.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   5.05
 ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       7.64
 PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =   20.98
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.12 =    1483.90 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    100.12 TO NODE    100.12 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    100.12 TO NODE    100.12 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN) = 104.58   RAIN INTENSITY(INCH/HOUR) =  0.93
 TOTAL AREA(ACRES) =    17.80   TOTAL RUNOFF(CFS) =      2.38

****************************************************************************
 FLOW PROCESS FROM NODE    100.12 TO NODE    100.12 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =  104.58
 RAINFALL INTENSITY(INCH/HR) =   0.93
 TOTAL STREAM AREA(ACRES) =    17.80
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.38

****************************************************************************
 FLOW PROCESS FROM NODE    600.00 TO NODE    600.10 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .7600
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   144.00
 UPSTREAM ELEVATION(FEET) =    322.44
 DOWNSTREAM ELEVATION(FEET) =    320.95
 ELEVATION DIFFERENCE(FEET) =      1.49
 SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.891
 WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
          THE MAXIMUM OVERLAND FLOW LENGTH =    65.35
          (Reference: Table 3-1B of Hydrology Manual)
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.587
 NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
 SUBAREA RUNOFF(CFS) =      1.35
 TOTAL AREA(ACRES) =      0.27   TOTAL RUNOFF(CFS) =      1.35

****************************************************************************
 FLOW PROCESS FROM NODE    600.10 TO NODE    600.20 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    320.95  DOWNSTREAM(FEET) =    317.90
```

```
  CHANNEL LENGTH THRU SUBAREA(FEET) =   100.00   CHANNEL SLOPE =  0.0305
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.018   MAXIMUM DEPTH(FEET) =   1.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.230
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7600
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.16
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.98
  AVERAGE FLOW DEPTH(FEET) =   0.12   TRAVEL TIME(MIN.) =   0.56
  Tc(MIN.) =    5.45
  SUBAREA AREA(ACRES) =     0.34       SUBAREA RUNOFF(CFS) =    1.61
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.760
  TOTAL AREA(ACRES) =        0.6         PEAK FLOW RATE(CFS) =       2.89

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.13   FLOW VELOCITY(FEET/SEC.) =   3.39
  LONGEST FLOWPATH FROM NODE    600.00 TO NODE    600.20 =     244.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    600.20 TO NODE    600.20 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.230
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7534
  SUBAREA AREA(ACRES) =    0.01   SUBAREA RUNOFF(CFS) =    0.02
  TOTAL AREA(ACRES) =        0.6   TOTAL RUNOFF(CFS) =       2.91
  TC(MIN.) =    5.45

****************************************************************************
  FLOW PROCESS FROM NODE    600.20 TO NODE    600.20 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =   5.55   RAIN INTENSITY(INCH/HOUR) =  6.16
  TOTAL AREA(ACRES) =     0.62   TOTAL RUNOFF(CFS) =      2.87

****************************************************************************
  FLOW PROCESS FROM NODE    600.20 TO NODE    600.30 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   313.40  DOWNSTREAM(FEET) =   305.30
  FLOW LENGTH(FEET) =   274.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   5.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.39
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.87
  PIPE TRAVEL TIME(MIN.) =   0.62    Tc(MIN.) =    6.17
  LONGEST FLOWPATH FROM NODE    600.00 TO NODE    600.30 =     518.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    600.30 TO NODE    600.40 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   310.35  DOWNSTREAM(FEET) =   307.69
  FLOW LENGTH(FEET) =   266.00   MANNING'S N =  0.013
```



```
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   8.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.85
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.87
  PIPE TRAVEL TIME(MIN.) =   0.92    Tc(MIN.) =    7.08
  LONGEST FLOWPATH FROM NODE    600.00 TO NODE    600.40 =     784.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    600.40 TO NODE    100.12 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.08
  RAINFALL INTENSITY(INCH/HR) =   5.26
  TOTAL STREAM AREA(ACRES) =     0.62
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.87

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        2.38   104.58        0.927         17.80
      2        2.87     7.08        5.262          0.62

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc      INTENSITY
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)
      1        3.03     7.08        5.262
      2        2.89   104.58        0.927

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.03   Tc(MIN.) =    7.08
  TOTAL AREA(ACRES) =       18.4
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.12 =    1483.90 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.13 TO NODE    100.14 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   297.80  DOWNSTREAM(FEET) =   293.86
  FLOW LENGTH(FEET) =   184.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.63
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.03
  PIPE TRAVEL TIME(MIN.) =   0.46    Tc(MIN.) =    7.55
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.14 =    1667.90 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.14 TO NODE    100.15 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   293.86  DOWNSTREAM(FEET) =   290.67
  FLOW LENGTH(FEET) =    53.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   6.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.67
```

```
 ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       3.03
 PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =    7.64
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.15 =    1720.90 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    100.15 TO NODE    100.16 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   290.67  DOWNSTREAM(FEET) =   289.20
 FLOW LENGTH(FEET) =    25.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN   9.0 INCH PIPE IS   6.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   9.59
 ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       3.03
 PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    7.68
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.16 =    1745.90 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =       18.4  TC(MIN.) =      7.68
 PEAK FLOW RATE(CFS)   =       3.03
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

POST-DEVELOPMENT CONDITION (MITIGATED)

```
**************************************************************************

           RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                        2003,1985,1981 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
             Ver. 23.0 Release Date: 07/01/2016  License ID 1452

                          Analysis prepared by:

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                        535 NORTH HIGHWAY 101, STE A
                           SOLANA BEACH, CA 92075
                                858-259-8212

 ************************* DESCRIPTION OF STUDY *************************
* 3084   Fox Point                                                       *
* Proposed Condition    Detained                                         *
* 100-yr                                                                 *
 **************************************************************************

  FILE NAME: 3084PDB.DAT
  TIME/DATE OF STUDY: 11:47 07/22/2020
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150
  2   12.0      7.0    0.020/0.020/0.020   0.50    1.50 0.0100 0.125 0.0180

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    200.10 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   124.00
  UPSTREAM ELEVATION(FEET) =    319.55
  DOWNSTREAM ELEVATION(FEET) =    318.90
  ELEVATION DIFFERENCE(FEET) =      0.65
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.155
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    50.73
```



```
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.228
  SUBAREA RUNOFF(CFS) =      1.46
  TOTAL AREA(ACRES) =      0.43   TOTAL RUNOFF(CFS) =      1.46

**************************************************************************
  FLOW PROCESS FROM NODE    200.10 TO NODE    200.10 IS CODE =  81
--------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.228
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6432
  SUBAREA AREA(ACRES) =    0.01   SUBAREA RUNOFF(CFS) =    0.02
  TOTAL AREA(ACRES) =       0.4   TOTAL RUNOFF(CFS) =      1.48
  TC(MIN.) =    7.15

**************************************************************************
  FLOW PROCESS FROM NODE    200.10 TO NODE    200.10 IS CODE =   7
--------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
==========================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =   7.55   RAIN INTENSITY(INCH/HOUR) =  5.05
  TOTAL AREA(ACRES) =     0.40   TOTAL RUNOFF(CFS) =      1.42

**************************************************************************
  FLOW PROCESS FROM NODE    200.10 TO NODE    200.20 IS CODE =  31
--------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   311.60  DOWNSTREAM(FEET) =   311.24
  FLOW LENGTH(FEET) =    24.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.76
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.42
  PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =    7.63
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    200.20 =     148.00 FEET.

**************************************************************************
  FLOW PROCESS FROM NODE    200.20 TO NODE    200.30 IS CODE =  31
--------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   311.24  DOWNSTREAM(FEET) =   308.38
  FLOW LENGTH(FEET) =   191.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.76
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.42
  PIPE TRAVEL TIME(MIN.) =   0.67    Tc(MIN.) =    8.30
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    200.30 =     339.00 FEET.

**************************************************************************
  FLOW PROCESS FROM NODE    200.30 TO NODE    200.40 IS CODE =  31
--------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==========================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =   308.38  DOWNSTREAM(FEET) =   307.66
  FLOW LENGTH(FEET) =    48.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.78
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.42
  PIPE TRAVEL TIME(MIN.) =   0.17    Tc(MIN.) =    8.47
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    200.40 =     387.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    200.40 TO NODE    200.40 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.47
  RAINFALL INTENSITY(INCH/HR) =   4.69
  TOTAL STREAM AREA(ACRES) =     0.40
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.42

****************************************************************************
  FLOW PROCESS FROM NODE    300.00 TO NODE    300.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  UPSTREAM ELEVATION(FEET) =    320.02
  DOWNSTREAM ELEVATION(FEET) =    319.02
  ELEVATION DIFFERENCE(FEET) =      1.00
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.530
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    65.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.545
  SUBAREA RUNOFF(CFS) =      0.61
  TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.61

****************************************************************************
  FLOW PROCESS FROM NODE    300.10 TO NODE    300.20 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    319.02  DOWNSTREAM(FEET) =    318.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   136.00   CHANNEL SLOPE =  0.0038
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   1.250
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.903
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.27
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.65
  AVERAGE FLOW DEPTH(FEET) =   0.15   TRAVEL TIME(MIN.) =   1.37
  Tc(MIN.) =    7.90
  SUBAREA AREA(ACRES) =     0.41       SUBAREA RUNOFF(CFS) =    1.31
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.650
  TOTAL AREA(ACRES) =        0.6         PEAK FLOW RATE(CFS) =       1.85

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
```



```
  DEPTH(FEET) =  0.19   FLOW VELOCITY(FEET/SEC.) =   1.90
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    300.20 =     236.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    300.20 TO NODE    300.20 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.903
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6449
  SUBAREA AREA(ACRES) =     0.01   SUBAREA RUNOFF(CFS) =     0.02
  TOTAL AREA(ACRES) =        0.6   TOTAL RUNOFF(CFS) =       1.87
  TC(MIN.) =    7.90

****************************************************************************
  FLOW PROCESS FROM NODE    300.20 TO NODE    300.20 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =   8.10   RAIN INTENSITY(INCH/HOUR) =  4.83
  TOTAL AREA(ACRES) =     0.60   TOTAL RUNOFF(CFS) =      1.83

****************************************************************************
  FLOW PROCESS FROM NODE    300.20 TO NODE    200.40 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   313.80  DOWNSTREAM(FEET) =   307.66
  FLOW LENGTH(FEET) =    12.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   6.0 INCH PIPE IS   2.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.20
  ESTIMATED PIPE DIAMETER(INCH) =   6.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.83
  PIPE TRAVEL TIME(MIN.) =   0.01    Tc(MIN.) =    8.11
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    200.40 =     248.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    200.40 TO NODE    200.40 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.11
  RAINFALL INTENSITY(INCH/HR) =   4.82
  TOTAL STREAM AREA(ACRES) =     0.60
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.83

  ** CONFLUENCE DATA **
  STREAM      RUNOFF        Tc       INTENSITY       AREA
  NUMBER       (CFS)      (MIN.)    (INCH/HOUR)    (ACRE)
      1         1.42      8.47         4.688          0.40
      2         1.83      8.11         4.821          0.60

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM      RUNOFF       Tc       INTENSITY
```

```
  NUMBER       (CFS)     (MIN.)    (INCH/HOUR)
      1         3.19      8.11        4.821
      2         3.20      8.47        4.688

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =        3.20   Tc(MIN.) =    8.47
  TOTAL AREA(ACRES) =         1.0
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    200.40 =     387.00 FEET.

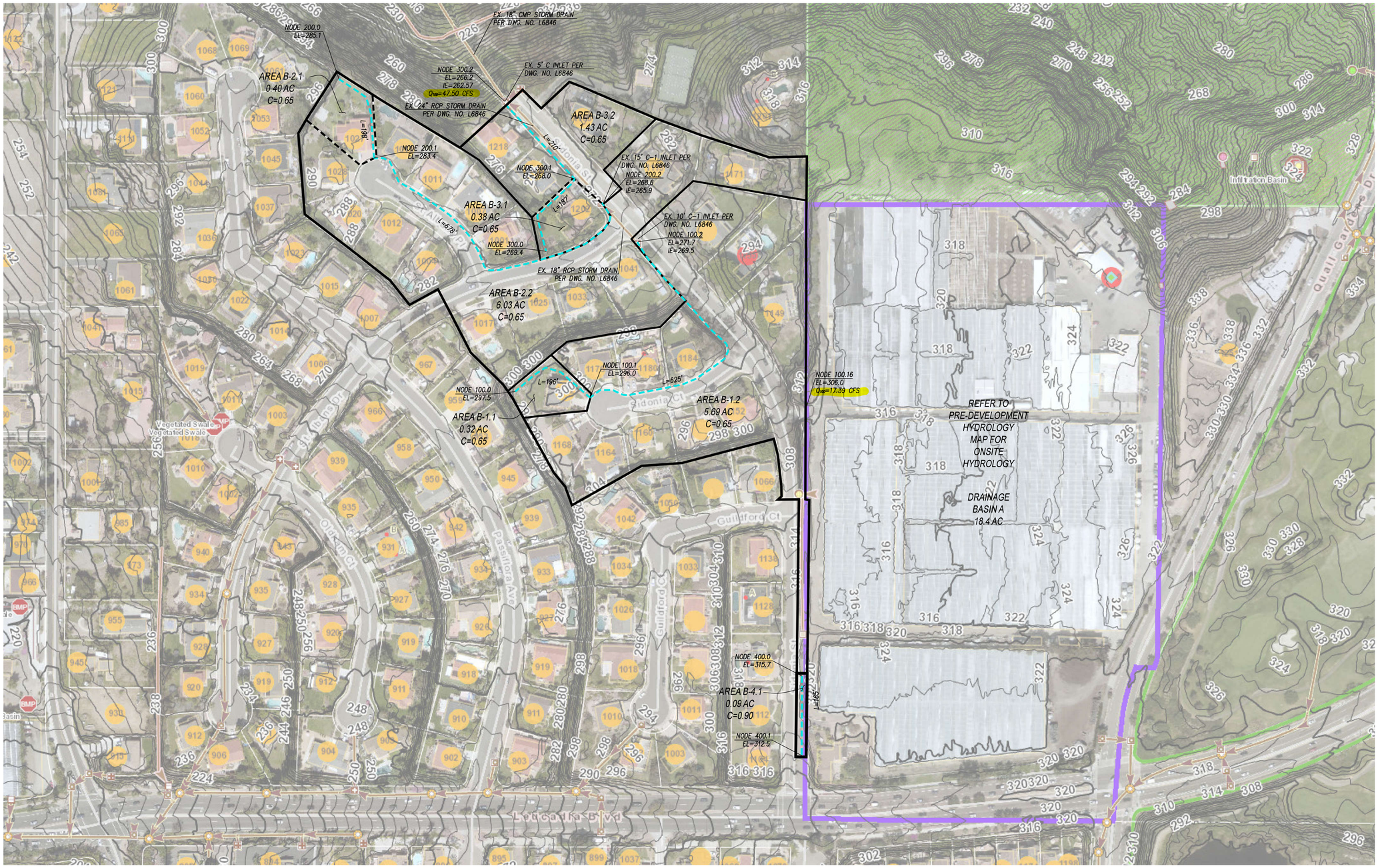
****************************************************************************
  FLOW PROCESS FROM NODE    200.40 TO NODE    200.50 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   307.66  DOWNSTREAM(FEET) =   307.20
  FLOW LENGTH(FEET) =    16.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.50
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.20
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    8.51
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    200.50 =     403.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =         1.0  TC(MIN.) =      8.51
  PEAK FLOW RATE(CFS)   =        3.20
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

APPENDIX D

Offsite Hydrology Analysis Node Map

PRE-DEVELOPMENT OFFSITE HYDROLOGY NODE MAP

FOX POINT, ENCINITAS, CA



LEGEND

- PROJECT BOUNDARY
- DRAINAGE PATH OF TRAVEL
- BASIN BONDARY
- SUB-BASIN BOUNDARY
- INITIAL SUB-BASIN BOUNDAY

PLAN VIEW - FOX POINT OFFSITE HYDROLOGY NODE MAP

SCALE: 1" = 100'

N

0 100' 200' 300'

SCALE: 1"=100'

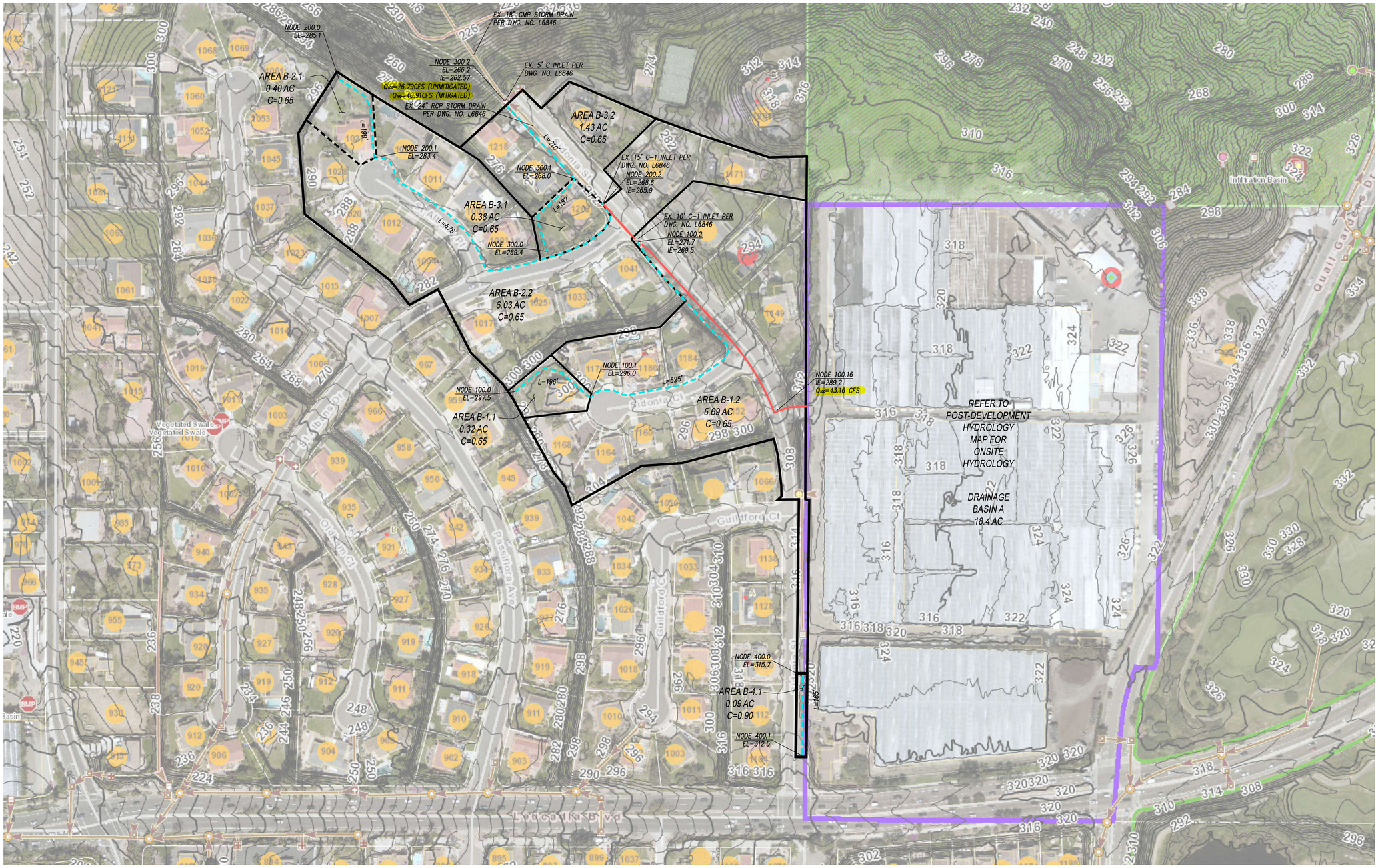
PREPARED BY:

REGISTERED PROFESSIONAL ENGINEER
TYLER G LAWSON
No. 80356
Exp. 12/31/20
CIVIL
STATE OF CALIFORNIA

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535 North Highway 101, Ste A, Solana Beach, CA 92075
ph 858.259.8212 | fx 858.259.4812 | plsengineering.com

POST-DEVELOPMENT OFFSITE HYDROLOGY NODE MAP

FOX POINT, ENCINITAS, CA



LEGEND

- PROJECT BOUNDARY
- DRAINAGE PATH OF TRAVEL
- BASIN BONDARY
- SUB-BASIN BOUNDARY
- INITIAL SUB-BASIN BOUNDAY
- PROPOSED 24" STORM DRAIN

PLAN VIEW - FOX POINT OFFSITE HYDROLOGY NODE MAP

SCALE: 1" = 100'

0 100' 200' 300'

SCALE: 1"=100'

REGISTERED PROFESSIONAL ENGINEER
TYLER G LAWSON
No. 80356
Exp. 12/31/20
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APPENDIX E

AES Pre and Post-Development Output Report for Offsite Improvements

AES Pre-Development Output Report

OFFSITE PRE-DEVELOPMENT CONDITION

```
****************************************************************************

           RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                        2003,1985,1981 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
             Ver. 23.0 Release Date: 07/01/2016  License ID 1452

                          Analysis prepared by:

                      PASCO LARET SUITER & ASSOCIATES
                        535 NORTH HIGHWAY 101, STE A
                           SOLANA BEACH, CA 92075
                                858-259-8212

 ************************** DESCRIPTION OF STUDY **************************
* 3084  FOX POINT                                                         *
* 100-YR OFFSITE SIDONIA STREET ANALYSIS                                  *
* EXISTING CONDITION                                                      *
 ****************************************************************************

  FILE NAME: 3084EOFF.DAT
  TIME/DATE OF STUDY: 14:15 07/22/2020
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE    100.16 TO NODE    100.16 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =  17.71   RAIN INTENSITY(INCH/HOUR) =  2.91
  TOTAL AREA(ACRES) =    13.90   TOTAL RUNOFF(CFS) =    17.39

****************************************************************************
  FLOW PROCESS FROM NODE    100.16 TO NODE    300.20 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  306.00  DOWNSTREAM ELEVATION(FEET) =  266.20
```



```
  STREET LENGTH(FEET) =   910.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 16.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  11.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL) =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL) =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      17.39
    ***STREET FLOW SPLITS OVER STREET-CROWN***
    FULL DEPTH(FEET) =    0.45   FLOOD WIDTH(FEET) =   16.00
    FULL HALF-STREET VELOCITY(FEET/SEC.) =    5.14
    SPLIT DEPTH(FEET) =    0.31   SPLIT FLOOD WIDTH(FEET) =    9.25
    SPLIT FLOW(CFS) =    3.62   SPLIT VELOCITY(FEET/SEC.) =    3.72
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.45
    HALFSTREET FLOOD WIDTH(FEET) =   16.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.14
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.29
  STREET FLOW TRAVEL TIME(MIN.) =   2.95   Tc(MIN.) =   20.66
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.638
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.429
  SUBAREA AREA(ACRES) =    0.00      SUBAREA RUNOFF(CFS) =    0.00
  TOTAL AREA(ACRES) =      13.9        PEAK FLOW RATE(CFS) =      17.39

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.45   HALFSTREET FLOOD WIDTH(FEET) =  16.00
  FLOW VELOCITY(FEET/SEC.) =  5.14   DEPTH*VELOCITY(FT*FT/SEC.) =   2.29
  LONGEST FLOWPATH FROM NODE      0.00 TO NODE    300.20 =     910.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    300.20 TO NODE    300.20 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    100.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =  0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   196.00
  UPSTREAM ELEVATION(FEET) =    297.50
  DOWNSTREAM ELEVATION(FEET) =    296.00
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.894
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    60.61
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.354
  SUBAREA RUNOFF(CFS) =      1.11
  TOTAL AREA(ACRES) =      0.32   TOTAL RUNOFF(CFS) =      1.11

****************************************************************************
  FLOW PROCESS FROM NODE    100.10 TO NODE    100.20 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
>>>>>(STANDARD CURB SECTION USED)<<<<<
==========================================================================
 UPSTREAM ELEVATION(FEET) =  296.00  DOWNSTREAM ELEVATION(FEET) =  271.70
 STREET LENGTH(FEET) =   625.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 16.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  11.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.14
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.34
   HALFSTREET FLOOD WIDTH(FEET) =   10.46
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.77
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.27
 STREET FLOW TRAVEL TIME(MIN.) =   2.76   Tc(MIN.) =    9.65
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.309
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6500
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.650
 SUBAREA AREA(ACRES) =    5.69      SUBAREA RUNOFF(CFS) =   15.94
 TOTAL AREA(ACRES) =        6.0        PEAK FLOW RATE(CFS) =      16.83

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.40   HALFSTREET FLOOD WIDTH(FEET) =  13.46
 FLOW VELOCITY(FEET/SEC.) =  4.36   DEPTH*VELOCITY(FT*FT/SEC.) =   1.72
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.20 =     821.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    100.20 TO NODE    200.20 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   269.50  DOWNSTREAM(FEET) =   265.90
 FLOW LENGTH(FEET) =   112.50   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS  13.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  11.77
 GIVEN PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      16.83
 PIPE TRAVEL TIME(MIN.) =   0.16    Tc(MIN.) =    9.81
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    200.20 =     933.50 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    200.20 TO NODE    200.20 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =    9.81
 RAINFALL INTENSITY(INCH/HR) =   4.26
 TOTAL STREAM AREA(ACRES) =     6.01
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     16.83

****************************************************************************
 FLOW PROCESS FROM NODE    200.00 TO NODE    200.10 IS CODE =  21
----------------------------------------------------------------------------
```



```
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6500
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   198.00
 UPSTREAM ELEVATION(FEET) =    285.10
 DOWNSTREAM ELEVATION(FEET) =    283.40
 ELEVATION DIFFERENCE(FEET) =      1.70
 SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.643
 WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
          THE MAXIMUM OVERLAND FLOW LENGTH =    60.76
          (Reference: Table 3-1B of Hydrology Manual)
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.484
 SUBAREA RUNOFF(CFS) =      1.43
 TOTAL AREA(ACRES) =      0.40   TOTAL RUNOFF(CFS) =      1.43

****************************************************************************
 FLOW PROCESS FROM NODE    200.10 TO NODE    200.20 IS CODE =  61
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  283.40  DOWNSTREAM ELEVATION(FEET) =  268.60
 STREET LENGTH(FEET) =   678.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 16.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  11.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.61
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.37
   HALFSTREET FLOOD WIDTH(FEET) =   12.00
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.08
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.13
 STREET FLOW TRAVEL TIME(MIN.) =   3.67   Tc(MIN.) =   10.31
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.130
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6500
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.650
 SUBAREA AREA(ACRES) =    6.03      SUBAREA RUNOFF(CFS) =   16.19
 TOTAL AREA(ACRES) =        6.4        PEAK FLOW RATE(CFS) =      17.26

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.43   HALFSTREET FLOOD WIDTH(FEET) =  15.27
 FLOW VELOCITY(FEET/SEC.) =  3.52   DEPTH*VELOCITY(FT*FT/SEC.) =   1.52
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    200.20 =     876.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    200.20 TO NODE    200.20 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
```

```
 TIME OF CONCENTRATION(MIN.) =   10.31
 RAINFALL INTENSITY(INCH/HR) =   4.13
 TOTAL STREAM AREA(ACRES) =     6.43
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     17.26

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)    (INCH/HOUR)    (ACRE)
     1       16.83     9.81        4.264          6.01
     2       17.26    10.31        4.130          6.43

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF       Tc      INTENSITY
 NUMBER      (CFS)     (MIN.)    (INCH/HOUR)
     1       33.26     9.81        4.264
     2       33.57    10.31        4.130

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      33.57   Tc(MIN.) =   10.31
 TOTAL AREA(ACRES) =       12.4
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    200.20 =     933.50 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    200.20 TO NODE    300.20 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   265.90  DOWNSTREAM(FEET) =   262.57
 FLOW LENGTH(FEET) =   333.00   MANNING'S N =  0.013
 ASSUME FULL-FLOWING PIPELINE
 PIPE-FLOW VELOCITY(FEET/SEC.) =   7.75
 (PIPE FLOW VELOCITY CORRESPONDING TO NORMAL-DEPTH FLOW
  AT DEPTH = 0.94 * DIAMETER)
 GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      33.57
 PIPE TRAVEL TIME(MIN.) =   0.72    Tc(MIN.) =   11.03
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    300.20 =    1266.50 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    300.20 TO NODE    300.20 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   11.03
 RAINFALL INTENSITY(INCH/HR) =   3.95
 TOTAL STREAM AREA(ACRES) =    12.44
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     33.57

****************************************************************************
 FLOW PROCESS FROM NODE    300.00 TO NODE    300.10 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6500
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   187.00
 UPSTREAM ELEVATION(FEET) =    269.40
 DOWNSTREAM ELEVATION(FEET) =    268.00
```



```
 ELEVATION DIFFERENCE(FEET) =      1.40
 SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.762
 WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
          THE MAXIMUM OVERLAND FLOW LENGTH =    57.46
          (Reference: Table 3-1B of Hydrology Manual)
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.421
 SUBAREA RUNOFF(CFS) =      1.34
 TOTAL AREA(ACRES) =      0.38   TOTAL RUNOFF(CFS) =      1.34

****************************************************************************
 FLOW PROCESS FROM NODE    300.10 TO NODE    300.20 IS CODE =  61
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  268.00  DOWNSTREAM ELEVATION(FEET) =  266.20
 STREET LENGTH(FEET) =   210.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 16.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  11.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.52
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.38
   HALFSTREET FLOOD WIDTH(FEET) =   12.86
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.98
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.76
 STREET FLOW TRAVEL TIME(MIN.) =   1.76   Tc(MIN.) =    8.53
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.669
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6500
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.650
 SUBAREA AREA(ACRES) =    1.43      SUBAREA RUNOFF(CFS) =    4.34
 TOTAL AREA(ACRES) =        1.8        PEAK FLOW RATE(CFS) =       5.49

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.43   HALFSTREET FLOOD WIDTH(FEET) =  15.36
 FLOW VELOCITY(FEET/SEC.) =  2.22   DEPTH*VELOCITY(FT*FT/SEC.) =   0.96
 LONGEST FLOWPATH FROM NODE    300.00 TO NODE    300.20 =     397.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    300.20 TO NODE    300.20 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =    8.53
 RAINFALL INTENSITY(INCH/HR) =   4.67
 TOTAL STREAM AREA(ACRES) =     1.81
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.49

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)    (INCH/HOUR)    (ACRE)
```

```
      1       33.57    11.03        3.955         12.44
      2        5.49     8.53        4.669          1.81

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       33.93     8.53       4.669
      2       38.22    11.03       3.955

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      38.22   Tc(MIN.) =   11.03
  TOTAL AREA(ACRES) =       14.2
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    300.20 =    1266.50 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    300.20 TO NODE    300.20 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       38.22    11.03       3.955       14.25
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    300.20 =    1266.50 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       17.39    20.66       2.638       13.90
  LONGEST FLOWPATH FROM NODE      0.00 TO NODE    300.20 =     910.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1      47.50      11.03       3.955
      2      42.88      20.66       2.638

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      47.50   Tc(MIN.) =   11.03
  TOTAL AREA(ACRES) =       28.1
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)      =       28.1  TC(MIN.) =     11.03
  PEAK FLOW RATE(CFS)    =      47.50
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

AES Post-Development Output Report (Unmitigated)

OFFSITE POST-DEVELOPMENT CONDITION (UNMITIGATED)

```
**************************************************************************

           RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                        2003,1985,1981 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
             Ver. 23.0 Release Date: 07/01/2016  License ID 1452

                          Analysis prepared by:

                      PASCO LARET SUITER & ASSOCIATES
                        535 NORTH HIGHWAY 101, STE A
                           SOLANA BEACH, CA 92075
                                858-259-8212

 ************************* DESCRIPTION OF STUDY *************************
* 3084  FOX POINT                                                       *
* 100-YR OFFSITE SIDONIA STREET ANALYSIS                                *
* PROPOSED SIDONIA STREET WIDENING IMPROVEMENT CONDITION                *
 ************************************************************************

  FILE NAME: 3084POFF.DAT
  TIME/DATE OF STUDY: 08:18 07/27/2020
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
  FLOW PROCESS FROM NODE    100.16 TO NODE    100.16 IS CODE =   7
------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
========================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =  11.98   RAIN INTENSITY(INCH/HOUR) =  3.75
  TOTAL AREA(ACRES) =    18.40   TOTAL RUNOFF(CFS) =     43.16

**************************************************************************
  FLOW PROCESS FROM NODE    100.16 TO NODE    100.20 IS CODE =  31
------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   289.20  DOWNSTREAM(FEET) =   269.50
```



```
  FLOW LENGTH(FEET) =   448.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  18.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.74
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      43.16
  PIPE TRAVEL TIME(MIN.) =   0.45    Tc(MIN.) =   12.43
  LONGEST FLOWPATH FROM NODE      0.00 TO NODE    100.20 =     448.00 FEET.

**************************************************************************
  FLOW PROCESS FROM NODE    100.20 TO NODE    100.20 IS CODE =   1
------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
========================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   12.43
  RAINFALL INTENSITY(INCH/HR) =   3.66
  TOTAL STREAM AREA(ACRES) =    18.40
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     43.16

**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    100.10 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   196.00
  UPSTREAM ELEVATION(FEET) =    297.50
  DOWNSTREAM ELEVATION(FEET) =    296.00
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.894
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    60.61
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.354
  SUBAREA RUNOFF(CFS) =      1.11
  TOTAL AREA(ACRES) =      0.32   TOTAL RUNOFF(CFS) =      1.11

**************************************************************************
  FLOW PROCESS FROM NODE    100.10 TO NODE    100.20 IS CODE =  61
------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
========================================================================
  UPSTREAM ELEVATION(FEET) =  296.00  DOWNSTREAM ELEVATION(FEET) =  271.70
  STREET LENGTH(FEET) =   625.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 16.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  11.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.14
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   10.46
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.77
```

```
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.27
  STREET FLOW TRAVEL TIME(MIN.) =   2.76   Tc(MIN.) =    9.65
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.309
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.650
  SUBAREA AREA(ACRES) =    5.69      SUBAREA RUNOFF(CFS) =   15.94
  TOTAL AREA(ACRES) =        6.0        PEAK FLOW RATE(CFS) =      16.83

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.40   HALFSTREET FLOOD WIDTH(FEET) =  13.46
  FLOW VELOCITY(FEET/SEC.) =  4.36   DEPTH*VELOCITY(FT*FT/SEC.) =   1.72
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.20 =     821.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.20 TO NODE    100.20 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.65
  RAINFALL INTENSITY(INCH/HR) =   4.31
  TOTAL STREAM AREA(ACRES) =     6.01
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     16.83

  ** CONFLUENCE DATA **
  STREAM     RUNOFF        Tc       INTENSITY      AREA
  NUMBER      (CFS)      (MIN.)    (INCH/HOUR)    (ACRE)
      1       43.16    12.43         3.662          18.40
      2       16.83     9.65         4.309           6.01

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc       INTENSITY
  NUMBER      (CFS)     (MIN.)    (INCH/HOUR)
      1       50.37     9.65        4.309
      2       57.46    12.43        3.662

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      57.46   Tc(MIN.) =   12.43
  TOTAL AREA(ACRES) =       24.4
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.20 =     821.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.20 TO NODE    200.20 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   269.50  DOWNSTREAM(FEET) =   265.90
  FLOW LENGTH(FEET) =   112.50   MANNING'S N =  0.013
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.86
  (PIPE FLOW VELOCITY CORRESPONDING TO NORMAL-DEPTH FLOW
   AT DEPTH = 0.94 * DIAMETER)
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      57.46
  PIPE TRAVEL TIME(MIN.) =   0.14    Tc(MIN.) =   12.56
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    200.20 =     933.50 FEET.
```



```
****************************************************************************
  FLOW PROCESS FROM NODE    200.20 TO NODE    200.20 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   12.56
  RAINFALL INTENSITY(INCH/HR) =   3.64
  TOTAL STREAM AREA(ACRES) =    24.41
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     57.46

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    200.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   198.00
  UPSTREAM ELEVATION(FEET) =    285.10
  DOWNSTREAM ELEVATION(FEET) =    283.40
  ELEVATION DIFFERENCE(FEET) =      1.70
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.643
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    60.76
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.484
  SUBAREA RUNOFF(CFS) =      1.43
  TOTAL AREA(ACRES) =      0.40   TOTAL RUNOFF(CFS) =      1.43

****************************************************************************
  FLOW PROCESS FROM NODE    200.10 TO NODE    200.20 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  283.40  DOWNSTREAM ELEVATION(FEET) =  268.60
  STREET LENGTH(FEET) =   678.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 16.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  11.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.61
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.37
    HALFSTREET FLOOD WIDTH(FEET) =   12.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.08
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.13
  STREET FLOW TRAVEL TIME(MIN.) =   3.67   Tc(MIN.) =   10.31
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.130
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.650
  SUBAREA AREA(ACRES) =    6.03      SUBAREA RUNOFF(CFS) =   16.19
```

```
 TOTAL AREA(ACRES) =        6.4        PEAK FLOW RATE(CFS) =      17.26

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.43   HALFSTREET FLOOD WIDTH(FEET) =  15.27
 FLOW VELOCITY(FEET/SEC.) =  3.52   DEPTH*VELOCITY(FT*FT/SEC.) =   1.52
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    200.20 =     876.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    200.20 TO NODE    200.20 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   10.31
 RAINFALL INTENSITY(INCH/HR) =   4.13
 TOTAL STREAM AREA(ACRES) =     6.43
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     17.26

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       57.46    12.56        3.636         24.41
     2       17.26    10.31        4.130          6.43

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF       Tc      INTENSITY
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)
     1       67.85    10.31        4.130
     2       72.66    12.56        3.636

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      72.66   Tc(MIN.) =   12.56
 TOTAL AREA(ACRES) =       30.8
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    200.20 =     933.50 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    200.20 TO NODE    300.20 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   265.90  DOWNSTREAM(FEET) =   262.57
 FLOW LENGTH(FEET) =   333.00   MANNING'S N =  0.013
 ASSUME FULL-FLOWING PIPELINE
 PIPE-FLOW VELOCITY(FEET/SEC.) =   7.75
 (PIPE FLOW VELOCITY CORRESPONDING TO NORMAL-DEPTH FLOW
  AT DEPTH = 0.94 * DIAMETER)
 GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      72.66
 PIPE TRAVEL TIME(MIN.) =   0.72    Tc(MIN.) =   13.28
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    300.20 =    1266.50 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    300.20 TO NODE    300.20 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   13.28
```



```
 RAINFALL INTENSITY(INCH/HR) =   3.51
 TOTAL STREAM AREA(ACRES) =    30.84
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     72.66

****************************************************************************
 FLOW PROCESS FROM NODE    300.00 TO NODE    300.10 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6500
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   187.00
 UPSTREAM ELEVATION(FEET) =    269.40
 DOWNSTREAM ELEVATION(FEET) =    268.00
 ELEVATION DIFFERENCE(FEET) =      1.40
 SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.762
 WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
          THE MAXIMUM OVERLAND FLOW LENGTH =    57.46
          (Reference: Table 3-1B of Hydrology Manual)
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.421
 SUBAREA RUNOFF(CFS) =      1.34
 TOTAL AREA(ACRES) =      0.38   TOTAL RUNOFF(CFS) =      1.34

****************************************************************************
 FLOW PROCESS FROM NODE    300.10 TO NODE    300.20 IS CODE =  61
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  268.00  DOWNSTREAM ELEVATION(FEET) =  266.20
 STREET LENGTH(FEET) =   210.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 16.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  11.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.52
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.38
   HALFSTREET FLOOD WIDTH(FEET) =   12.86
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.98
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.76
 STREET FLOW TRAVEL TIME(MIN.) =   1.76   Tc(MIN.) =    8.53
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.669
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6500
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.650
 SUBAREA AREA(ACRES) =    1.43      SUBAREA RUNOFF(CFS) =    4.34
 TOTAL AREA(ACRES) =        1.8        PEAK FLOW RATE(CFS) =       5.49

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.43   HALFSTREET FLOOD WIDTH(FEET) =  15.36
 FLOW VELOCITY(FEET/SEC.) =  2.22   DEPTH*VELOCITY(FT*FT/SEC.) =   0.96
 LONGEST FLOWPATH FROM NODE    300.00 TO NODE    300.20 =     397.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE    300.20 TO NODE    300.20 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =    8.53
 RAINFALL INTENSITY(INCH/HR) =   4.67
 TOTAL STREAM AREA(ACRES) =     1.81
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.49

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)    (INCH/HOUR)    (ACRE)
     1       72.66    13.28        3.508         30.84
     2        5.49     8.53        4.669          1.81

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF      Tc      INTENSITY
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
     1       60.09     8.53       4.669
     2       76.79    13.28       3.508

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      76.79   Tc(MIN.) =   13.28
 TOTAL AREA(ACRES) =       32.7
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    300.20 =    1266.50 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =       32.7  TC(MIN.) =     13.28
 PEAK FLOW RATE(CFS)   =      76.79
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

AES Post-Development Output Report (Mitigated)

OFFSITE POST-DEVELOPMENT CONDITION (MITIGATED)

```
**************************************************************************

           RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                        2003,1985,1981 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
             Ver. 23.0 Release Date: 07/01/2016  License ID 1452

                          Analysis prepared by:

                      PASCO LARET SUITER & ASSOCIATES
                        535 NORTH HIGHWAY 101, STE A
                           SOLANA BEACH, CA 92075
                                858-259-8212

 ************************* DESCRIPTION OF STUDY *************************
* 3084  FOX POINT                                                       *
* 100-YR OFFSITE SIDONIA STREET ANALYSIS                                *
* PROPOSED DETAINED SIDONIA STREET IMPROVEMENT CONDITION                *
 ************************************************************************

  FILE NAME: 3084PDOF.DAT
  TIME/DATE OF STUDY: 08:16 07/27/2020
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.500
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

**************************************************************************
  FLOW PROCESS FROM NODE    100.16 TO NODE    100.16 IS CODE =   7
------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
========================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN) =   7.68   RAIN INTENSITY(INCH/HOUR) =  4.99
  TOTAL AREA(ACRES) =    18.40   TOTAL RUNOFF(CFS) =      3.03

**************************************************************************
  FLOW PROCESS FROM NODE    100.16 TO NODE    100.20 IS CODE =  31
------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   289.20  DOWNSTREAM(FEET) =   269.50
```



```
  FLOW LENGTH(FEET) =   448.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 12.000
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   5.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.85
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.03
  PIPE TRAVEL TIME(MIN.) =   0.84    Tc(MIN.) =    8.52
  LONGEST FLOWPATH FROM NODE      0.00 TO NODE    100.20 =     448.00 FEET.

**************************************************************************
  FLOW PROCESS FROM NODE    100.20 TO NODE    100.20 IS CODE =   1
------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
========================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.52
  RAINFALL INTENSITY(INCH/HR) =   4.67
  TOTAL STREAM AREA(ACRES) =    18.40
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.03

**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    100.10 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   196.00
  UPSTREAM ELEVATION(FEET) =    297.50
  DOWNSTREAM ELEVATION(FEET) =    296.00
  ELEVATION DIFFERENCE(FEET) =      1.50
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.894
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    60.61
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.354
  SUBAREA RUNOFF(CFS) =      1.11
  TOTAL AREA(ACRES) =      0.32   TOTAL RUNOFF(CFS) =      1.11

**************************************************************************
  FLOW PROCESS FROM NODE    100.10 TO NODE    100.20 IS CODE =  61
------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
========================================================================
  UPSTREAM ELEVATION(FEET) =  296.00  DOWNSTREAM ELEVATION(FEET) =  271.70
  STREET LENGTH(FEET) =   625.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 16.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  11.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.14
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   10.46
```

```
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.77
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.27
  STREET FLOW TRAVEL TIME(MIN.) =   2.76   Tc(MIN.) =    9.65
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.309
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.650
  SUBAREA AREA(ACRES) =     5.69      SUBAREA RUNOFF(CFS) =   15.94
  TOTAL AREA(ACRES) =         6.0        PEAK FLOW RATE(CFS) =      16.83

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.40   HALFSTREET FLOOD WIDTH(FEET) =  13.46
  FLOW VELOCITY(FEET/SEC.) =  4.36   DEPTH*VELOCITY(FT*FT/SEC.) =   1.72
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.20 =     821.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.20 TO NODE    100.20 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.65
  RAINFALL INTENSITY(INCH/HR) =   4.31
  TOTAL STREAM AREA(ACRES) =     6.01
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     16.83

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)    (INCH/HOUR)    (ACRE)
      1        3.03     8.52        4.670         18.40
      2       16.83     9.65        4.309          6.01

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc      INTENSITY
  NUMBER      (CFS)     (MIN.)    (INCH/HOUR)
      1       17.89     8.52        4.670
      2       19.63     9.65        4.309

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      19.63   Tc(MIN.) =    9.65
  TOTAL AREA(ACRES) =       24.4
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    100.20 =     821.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    100.20 TO NODE    200.20 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   269.50  DOWNSTREAM(FEET) =   265.90
  FLOW LENGTH(FEET) =   112.50   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  12.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.55
  GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      19.63
  PIPE TRAVEL TIME(MIN.) =   0.15    Tc(MIN.) =    9.80
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    200.20 =     933.50 FEET.

****************************************************************************
```



```
  FLOW PROCESS FROM NODE    200.20 TO NODE    200.20 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.80
  RAINFALL INTENSITY(INCH/HR) =   4.27
  TOTAL STREAM AREA(ACRES) =    24.41
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     19.63

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    200.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   198.00
  UPSTREAM ELEVATION(FEET) =    285.10
  DOWNSTREAM ELEVATION(FEET) =    283.40
  ELEVATION DIFFERENCE(FEET) =      1.70
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.643
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    60.76
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.484
  SUBAREA RUNOFF(CFS) =      1.43
  TOTAL AREA(ACRES) =      0.40   TOTAL RUNOFF(CFS) =      1.43

****************************************************************************
  FLOW PROCESS FROM NODE    200.10 TO NODE    200.20 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  283.40  DOWNSTREAM ELEVATION(FEET) =  268.60
  STREET LENGTH(FEET) =   678.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 16.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  11.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.61
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.37
    HALFSTREET FLOOD WIDTH(FEET) =   12.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.08
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.13
  STREET FLOW TRAVEL TIME(MIN.) =   3.67   Tc(MIN.) =   10.31
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.130
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.650
  SUBAREA AREA(ACRES) =     6.03      SUBAREA RUNOFF(CFS) =   16.19
  TOTAL AREA(ACRES) =         6.4        PEAK FLOW RATE(CFS) =      17.26
```

```
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.43   HALFSTREET FLOOD WIDTH(FEET) =  15.27
 FLOW VELOCITY(FEET/SEC.) =  3.52   DEPTH*VELOCITY(FT*FT/SEC.) =   1.52
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    200.20 =     876.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    200.20 TO NODE    200.20 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   10.31
 RAINFALL INTENSITY(INCH/HR) =   4.13
 TOTAL STREAM AREA(ACRES) =      6.43
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     17.26

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)    (INCH/HOUR)    (ACRE)
     1       19.63     9.80        4.266         24.41
     2       17.26    10.31        4.130          6.43

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF       Tc      INTENSITY
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)
     1       36.04     9.80       4.266
     2       36.26    10.31       4.130

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      36.26   Tc(MIN.) =   10.31
 TOTAL AREA(ACRES) =       30.8
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    200.20 =     933.50 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    200.20 TO NODE    300.20 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   265.90  DOWNSTREAM(FEET) =   262.57
 FLOW LENGTH(FEET) =   333.00   MANNING'S N =  0.013
 ASSUME FULL-FLOWING PIPELINE
 PIPE-FLOW VELOCITY(FEET/SEC.) =   7.75
 (PIPE FLOW VELOCITY CORRESPONDING TO NORMAL-DEPTH FLOW
  AT DEPTH = 0.94 * DIAMETER)
 GIVEN PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      36.26
 PIPE TRAVEL TIME(MIN.) =   0.72    Tc(MIN.) =   11.03
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    300.20 =    1266.50 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    300.20 TO NODE    300.20 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   11.03
 RAINFALL INTENSITY(INCH/HR) =   3.95
```



```
 TOTAL STREAM AREA(ACRES) =    30.84
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     36.26

****************************************************************************
 FLOW PROCESS FROM NODE    300.00 TO NODE    300.10 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6500
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   187.00
 UPSTREAM ELEVATION(FEET) =    269.40
 DOWNSTREAM ELEVATION(FEET) =    268.00
 ELEVATION DIFFERENCE(FEET) =      1.40
 SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.762
 WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
          THE MAXIMUM OVERLAND FLOW LENGTH =    57.46
          (Reference: Table 3-1B of Hydrology Manual)
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.421
 SUBAREA RUNOFF(CFS) =      1.34
 TOTAL AREA(ACRES) =      0.38   TOTAL RUNOFF(CFS) =      1.34

****************************************************************************
 FLOW PROCESS FROM NODE    300.10 TO NODE    300.20 IS CODE =  61
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  268.00  DOWNSTREAM ELEVATION(FEET) =  266.20
 STREET LENGTH(FEET) =   210.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 16.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  11.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.52
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.38
   HALFSTREET FLOOD WIDTH(FEET) =   12.86
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.98
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.76
 STREET FLOW TRAVEL TIME(MIN.) =   1.76   Tc(MIN.) =    8.53
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.669
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6500
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.650
 SUBAREA AREA(ACRES) =    1.43      SUBAREA RUNOFF(CFS) =    4.34
 TOTAL AREA(ACRES) =        1.8        PEAK FLOW RATE(CFS) =       5.49

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.43   HALFSTREET FLOOD WIDTH(FEET) =  15.36
 FLOW VELOCITY(FEET/SEC.) =  2.22   DEPTH*VELOCITY(FT*FT/SEC.) =   0.96
 LONGEST FLOWPATH FROM NODE    300.00 TO NODE    300.20 =     397.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    300.20 TO NODE    300.20 IS CODE =   1
```

```
------------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
==============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.53
  RAINFALL INTENSITY(INCH/HR) =   4.67
  TOTAL STREAM AREA(ACRES) =     1.81
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.49

  ** CONFLUENCE DATA **
  STREAM     RUNOFF        Tc       INTENSITY      AREA
  NUMBER      (CFS)      (MIN.)    (INCH/HOUR)    (ACRE)
      1       36.26    11.03         3.955         30.84
      2        5.49     8.53         4.669          1.81

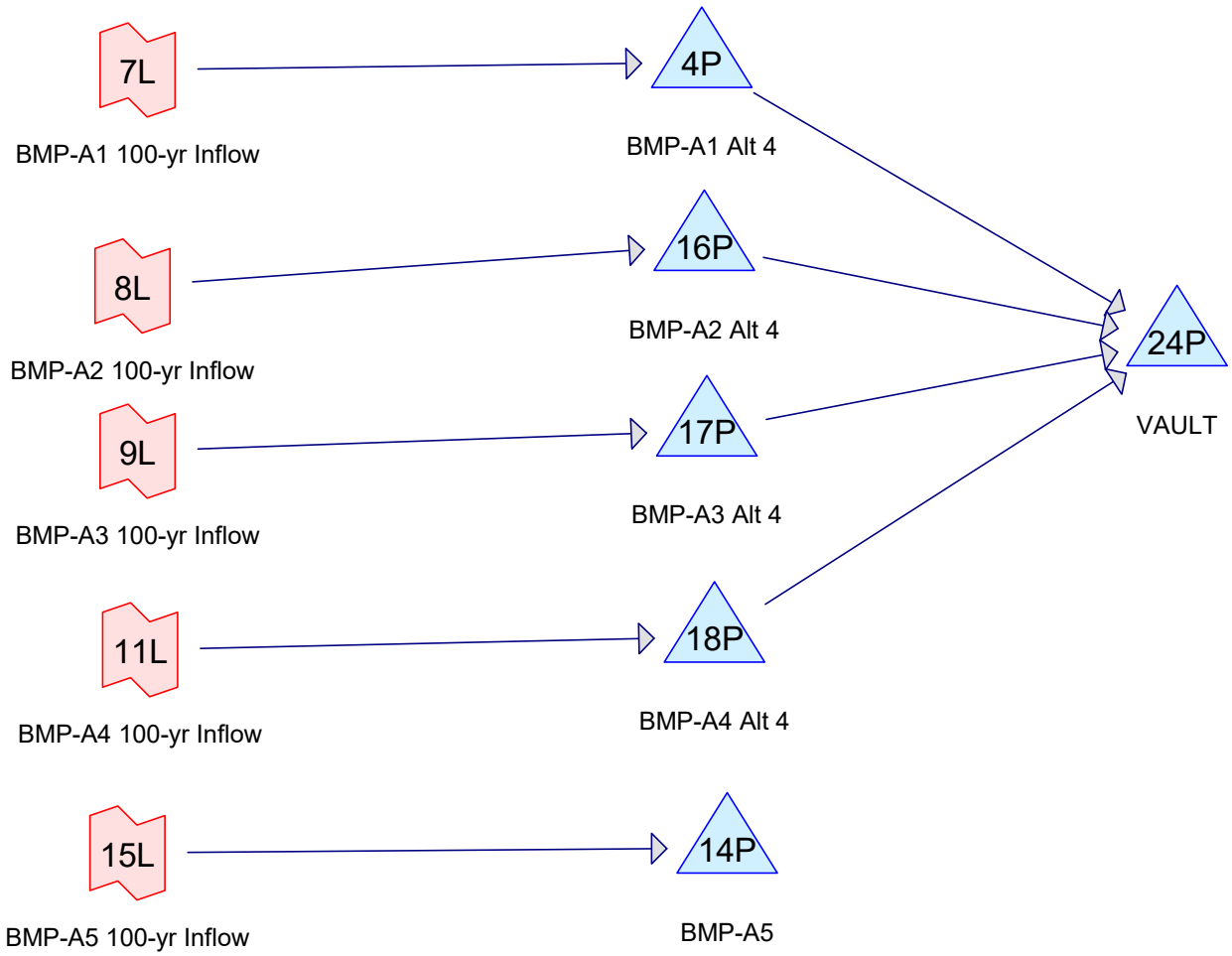
  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc       INTENSITY
  NUMBER      (CFS)     (MIN.)    (INCH/HOUR)
      1       36.21     8.53        4.669
      2       40.91    11.03        3.955

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      40.91   Tc(MIN.) =   11.03
  TOTAL AREA(ACRES) =       32.7
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    300.20 =    1266.50 FEET.
==============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       32.7  TC(MIN.) =     11.03
  PEAK FLOW RATE(CFS)   =      40.91
==============================================================================
==============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

APPENDIX F

Hydrograph and Detention Calculations



Subcat Reach Pond Link

Routing Diagram for 3084_Alt4

Prepared by Pasco Laret Suiter & Associates, Printed 7/22/2020

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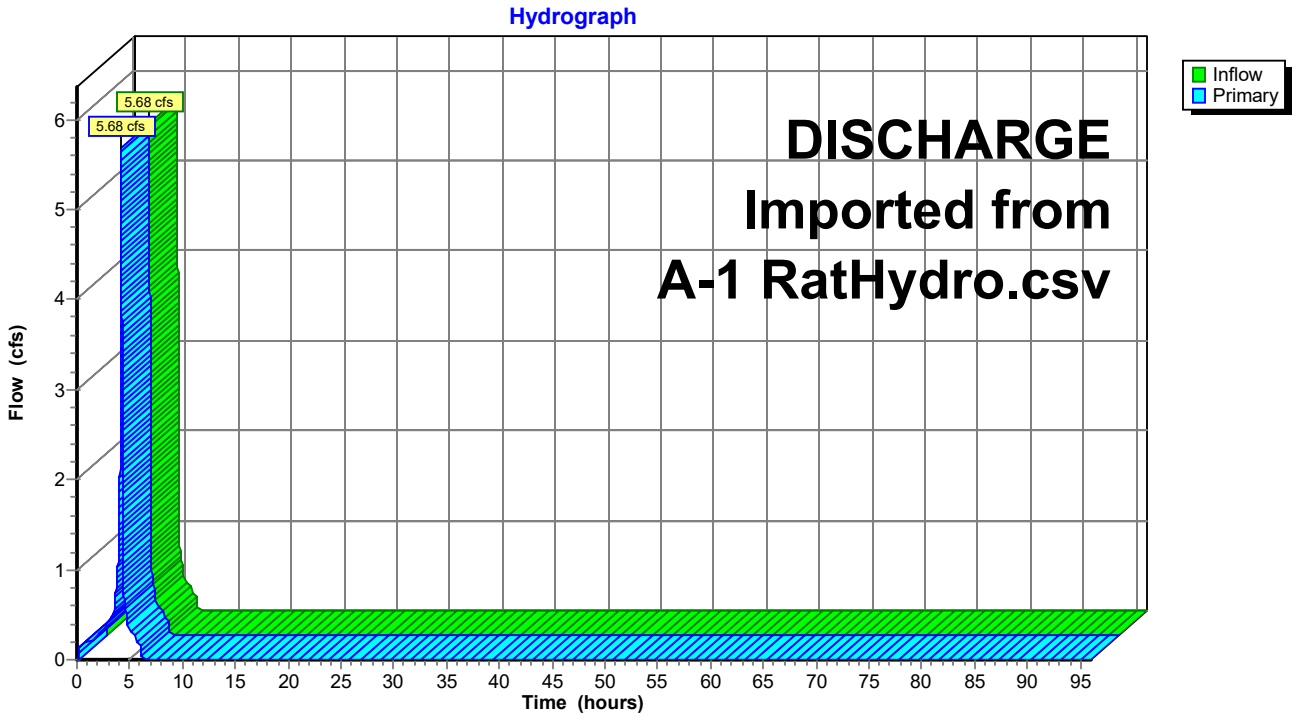
Summary for Link 7L: BMP-A1 100-yr Inflow

Inflow = 5.68 cfs @ 4.20 hrs, Volume= 0.255 af
Primary = 5.68 cfs @ 4.20 hrs, Volume= 0.255 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.001 hrs

DISCHARGE Imported from A-1 RatHydro.csv

Link 7L: BMP-A1 100-yr Inflow



Summary for Pond 4P: BMP-A1 Alt 4

Inflow	=	5.68 cfs @	4.20 hrs,	Volume=	0.255 af
Outflow	=	0.75 cfs @	4.28 hrs,	Volume=	0.255 af, Atten= 87%, Lag= 4.8 min
Primary	=	0.75 cfs @	4.28 hrs,	Volume=	0.255 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.001 hrs
Peak Elev= 97.43' @ 6.02 hrs Surf.Area= 1,532 sf Storage= 5,724 cf

Plug-Flow detention time= 563.1 min calculated for 0.255 af (100% of inflow)
Center-of-Mass det. time= 563.1 min (782.8 - 219.7)

Volume	Invert	Avail.Storage	Storage Description
#1	93.50'	10,801 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
93.50	1,532	0.0	0	0	1,532
98.50	1,532	95.0	7,277	7,277	2,226
100.00	1,532	20.0	460	7,737	2,434
102.00	1,532	100.0	3,064	10,801	2,711

Device	Routing	Invert	Outlet Devices
#1	Primary	93.50'	**18.0" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 93.50' / 92.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	93.50'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	101.50'	**36.0" x 36.0" Horiz. Grate** C= 0.600 in 36.0" x 36.0" Grate (100% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.75 cfs @ 4.28 hrs HW=96.89' TW=93.68' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.75 cfs of 13.86 cfs potential flow)
  - **2=Orifice** (Orifice Controls 0.75 cfs @ 8.63 fps)
  - **3=Grate** (Controls 0.00 cfs)

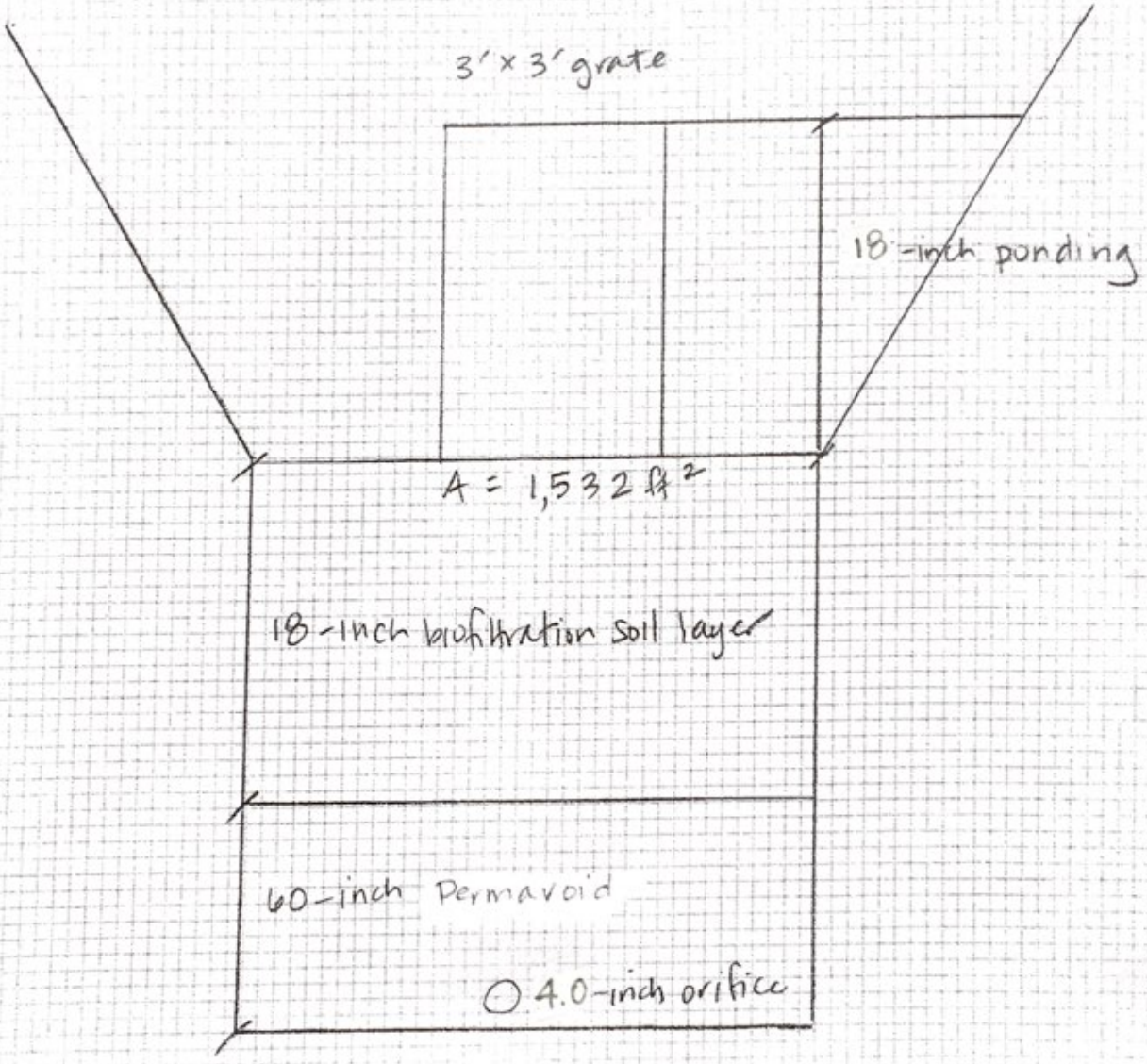
PASCO LARET SUITER & ASSOCIATES

Fox Point

Date 5/8/2020

Job# 3089

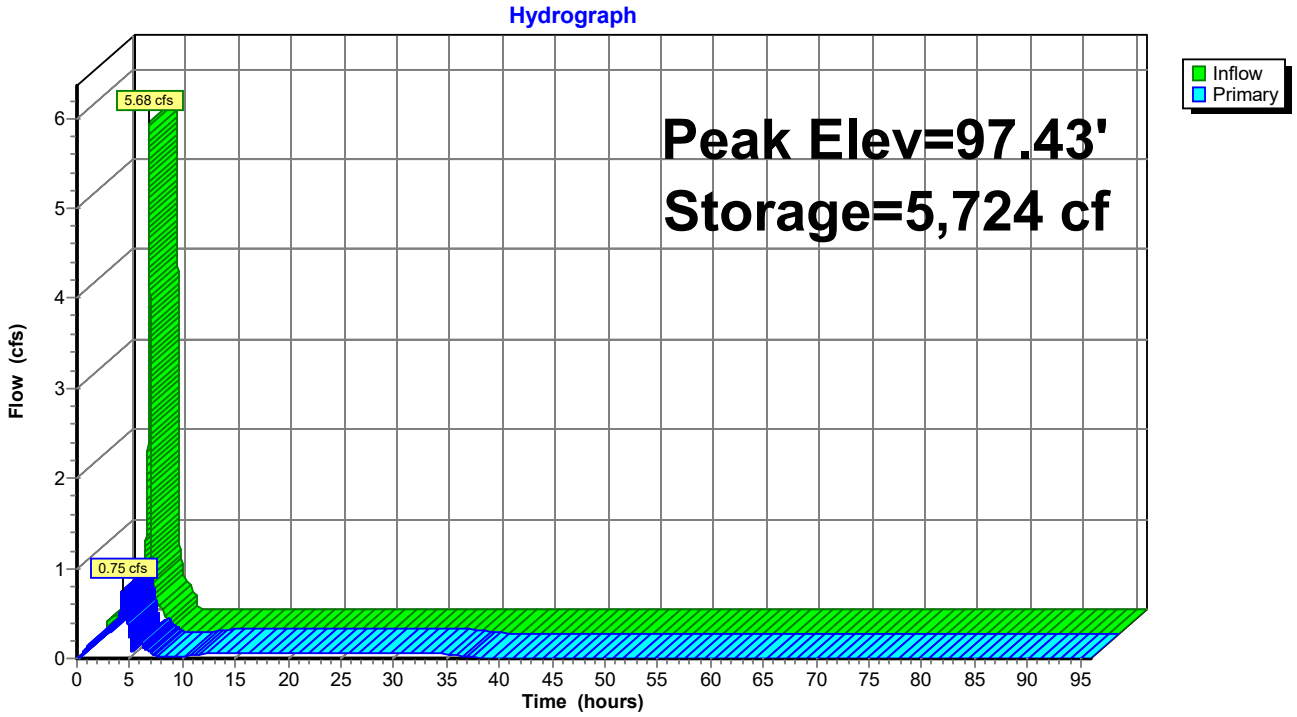
HMP Biofiltration Basin BMP-A1



Not to scale

A1+#6

Pond 4P: BMP-A1 Alt 4



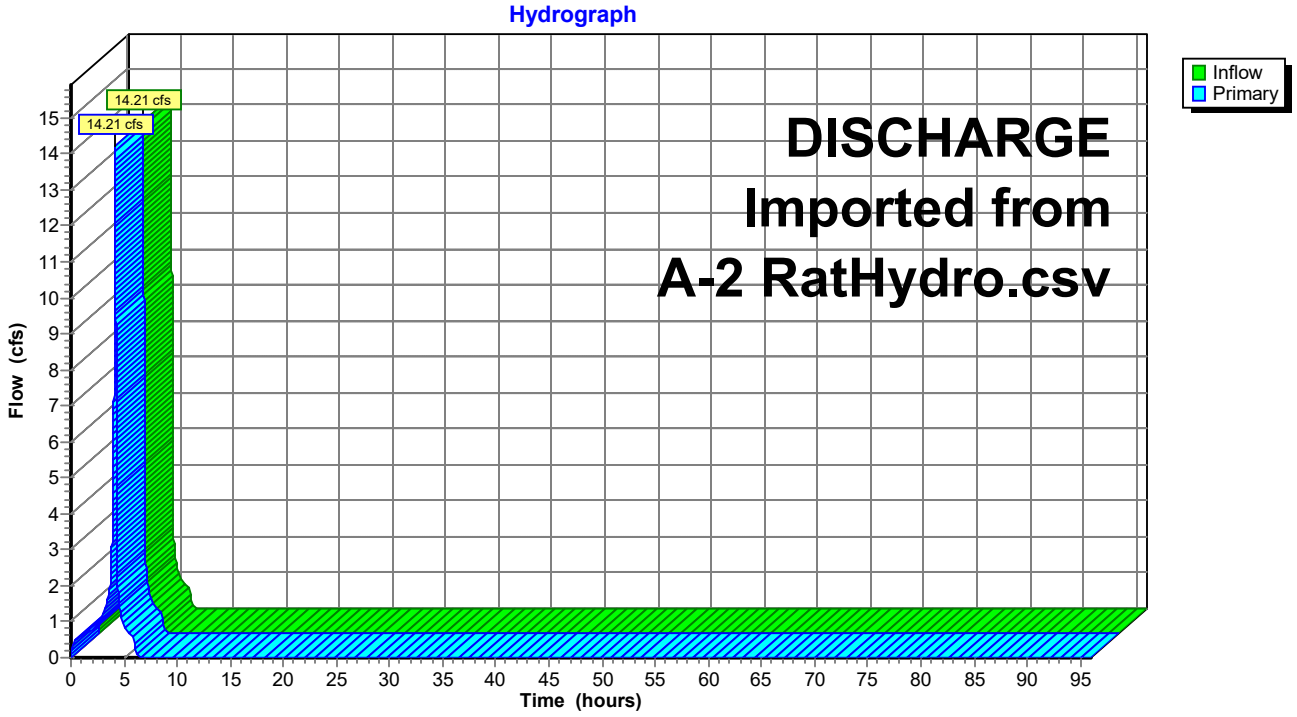
Summary for Link 8L: BMP-A2 100-yr Inflow

Inflow = 14.21 cfs @ 4.17 hrs, Volume= 0.713 af
Primary = 14.21 cfs @ 4.17 hrs, Volume= 0.713 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.001 hrs

DISCHARGE Imported from A-2 RatHydro.csv

Link 8L: BMP-A2 100-yr Inflow



Summary for Pond 16P: BMP-A2 Alt 4

Inflow	=	14.21 cfs @	4.17 hrs,	Volume=	0.713 af
Outflow	=	0.96 cfs @	4.32 hrs,	Volume=	0.712 af, Atten= 93%, Lag= 9.4 min
Primary	=	0.96 cfs @	4.32 hrs,	Volume=	0.712 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.001 hrs
Peak Elev= 100.16' @ 5.31 hrs Surf.Area= 4,010 sf Storage= 20,898 cf

Plug-Flow detention time= 616.6 min calculated for 0.712 af (100% of inflow)
Center-of-Mass det. time= 616.5 min (832.8 - 216.3)

Volume	Invert	Avail.Storage	Storage Description
#1	93.50'	28,271 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
93.50	4,010	0.0	0	0	4,010
98.50	4,010	95.0	19,048	19,048	5,132
100.00	4,010	20.0	1,203	20,251	5,469
102.00	4,010	100.0	8,020	28,271	5,918

Device	Routing	Invert	Outlet Devices
#1	Primary	93.50'	**18.0" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 93.50' / 92.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	93.50'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	101.50'	**36.0" x 36.0" Horiz. Grate** C= 0.600 in 36.0" x 36.0" Grate (100% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.96 cfs @ 4.32 hrs HW=99.26' TW=94.07' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.96 cfs of 18.55 cfs potential flow)
  └─**2=Orifice** (Orifice Controls 0.96 cfs @ 10.96 fps)
  └─**3=Grate** (Controls 0.00 cfs)

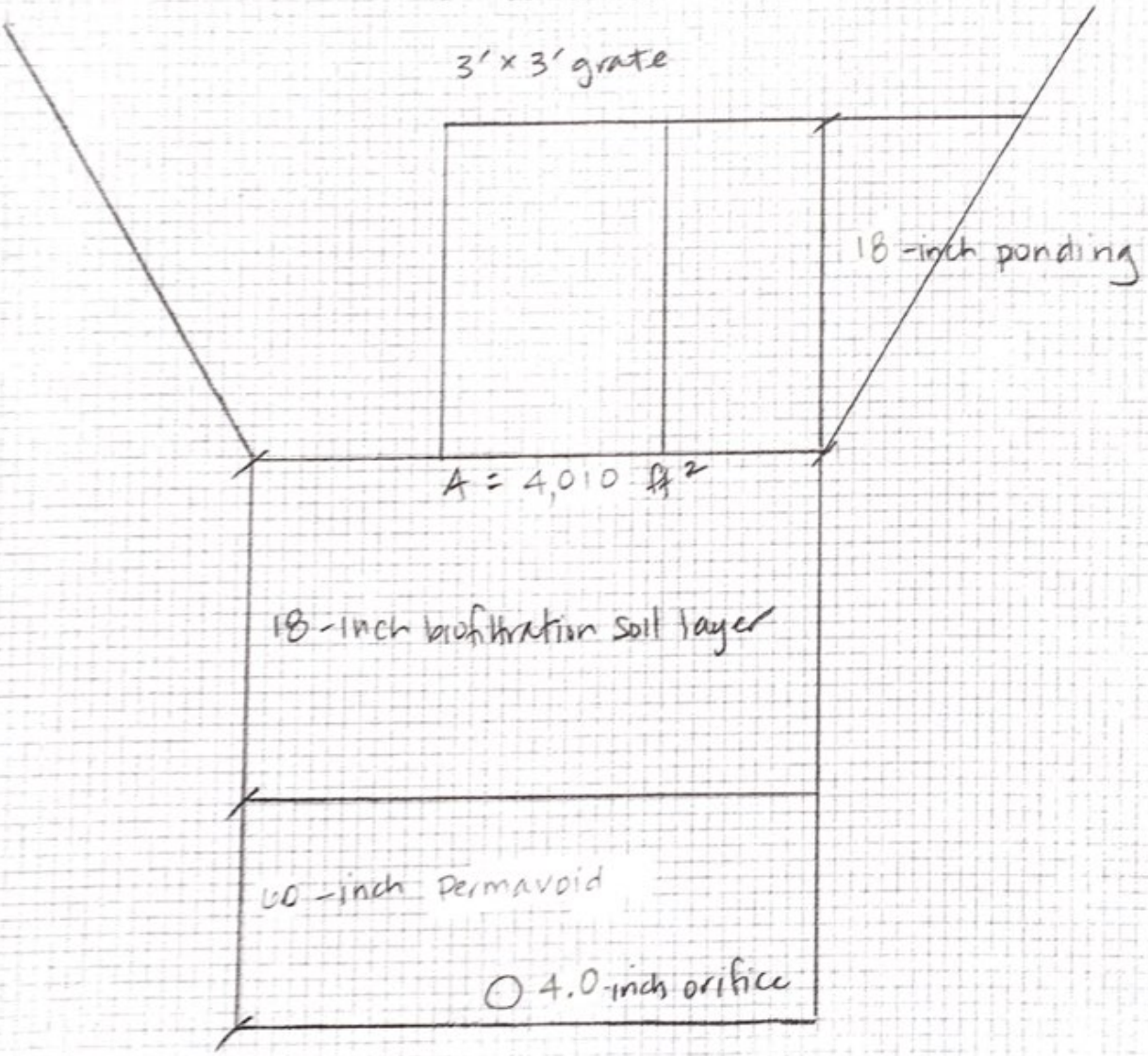
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Fox Point

Date 5/8/2020

Job# 3084

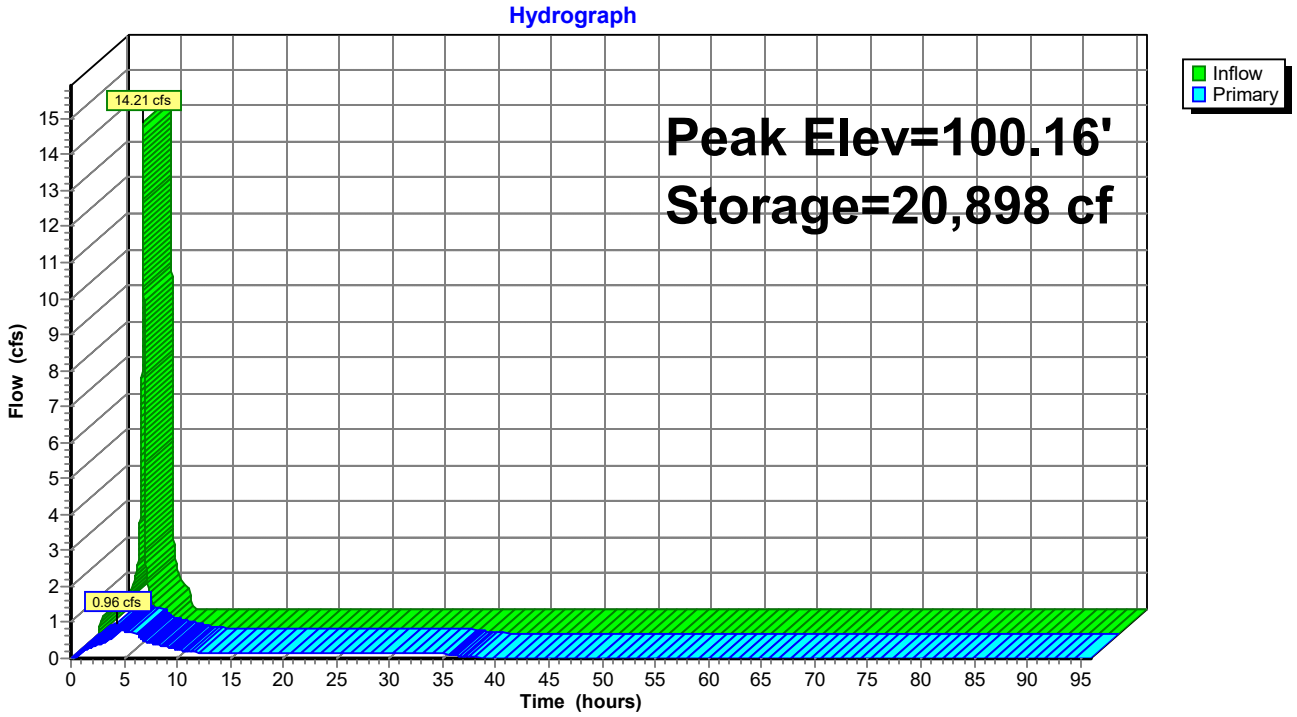
HMP Biofiltration Basin BMP-A2



Not to scale

Alt #6

Pond 16P: BMP-A2 Alt 4



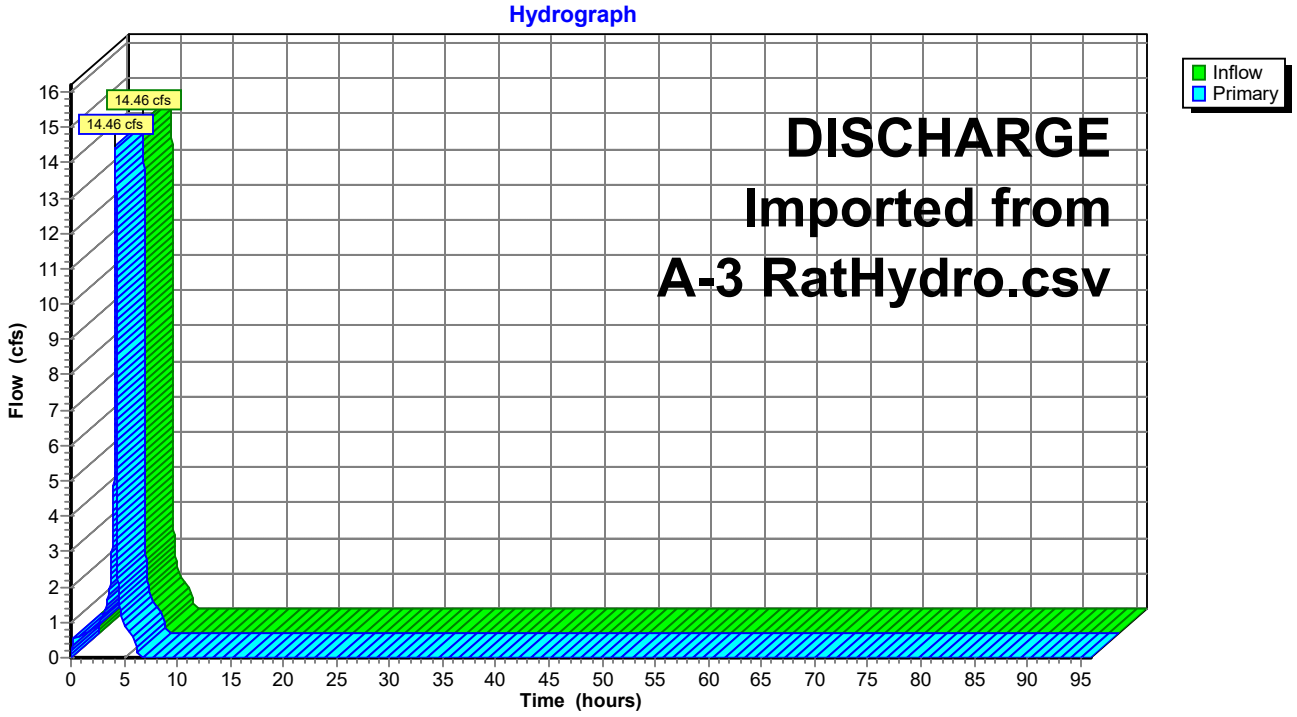
Summary for Link 9L: BMP-A3 100-yr Inflow

Inflow = 14.46 cfs @ 4.22 hrs, Volume= 0.762 af
Primary = 14.46 cfs @ 4.22 hrs, Volume= 0.762 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.001 hrs

DISCHARGE Imported from A-3 RatHydro.csv

Link 9L: BMP-A3 100-yr Inflow



Summary for Pond 17P: BMP-A3 Alt 4

Inflow	=	14.46 cfs @	4.22 hrs, Volume=	0.762 af
Outflow	=	0.90 cfs @	4.40 hrs, Volume=	0.761 af, Atten= 94%, Lag= 10.8 min
Primary	=	0.90 cfs @	4.40 hrs, Volume=	0.761 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.001 hrs
Peak Elev= 100.17' @ 5.47 hrs Surf.Area= 4,388 sf Storage= 22,927 cf

Plug-Flow detention time= 639.9 min calculated for 0.761 af (100% of inflow)
Center-of-Mass det. time= 639.8 min (858.6 - 218.8)

Volume	Invert	Avail.Storage	Storage Description
#1	93.50'	30,935 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
93.50	4,388	0.0	0	0	4,388
98.50	4,388	95.0	20,843	20,843	5,562
100.00	4,388	20.0	1,316	22,159	5,914
102.00	4,388	100.0	8,776	30,935	6,384

Device	Routing	Invert	Outlet Devices
#1	Primary	93.50'	**18.0" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 93.50' / 92.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	93.50'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	101.50'	**36.0" x 36.0" Horiz. Grate** C= 0.600 in 36.0" x 36.0" Grate (100% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.90 cfs @ 4.40 hrs HW=99.24' TW=94.66' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.90 cfs of 17.45 cfs potential flow)
  - **2=Orifice** (Orifice Controls 0.90 cfs @ 10.31 fps)
  - **3=Grate** (Controls 0.00 cfs)

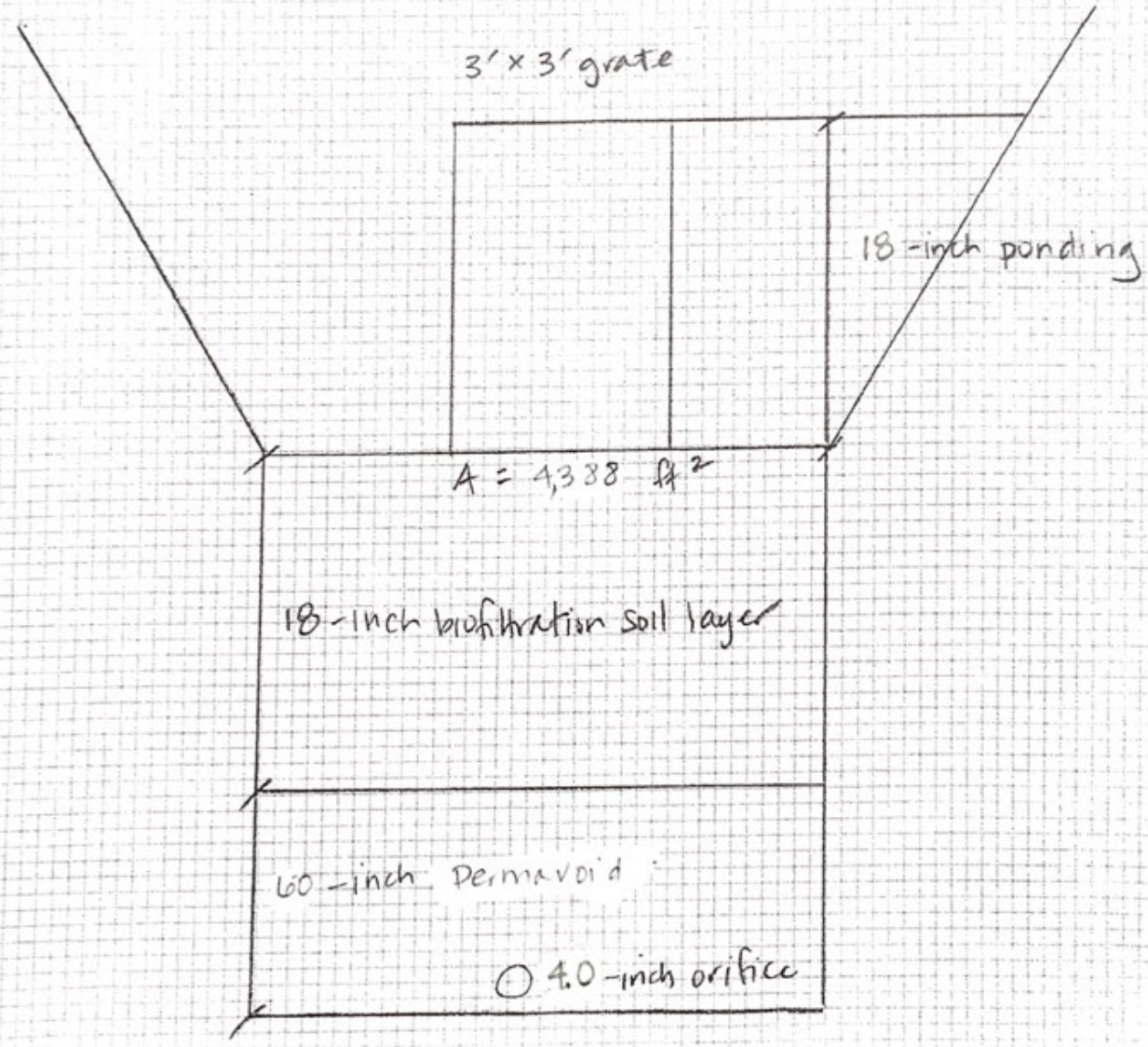
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Date 5/8/2020

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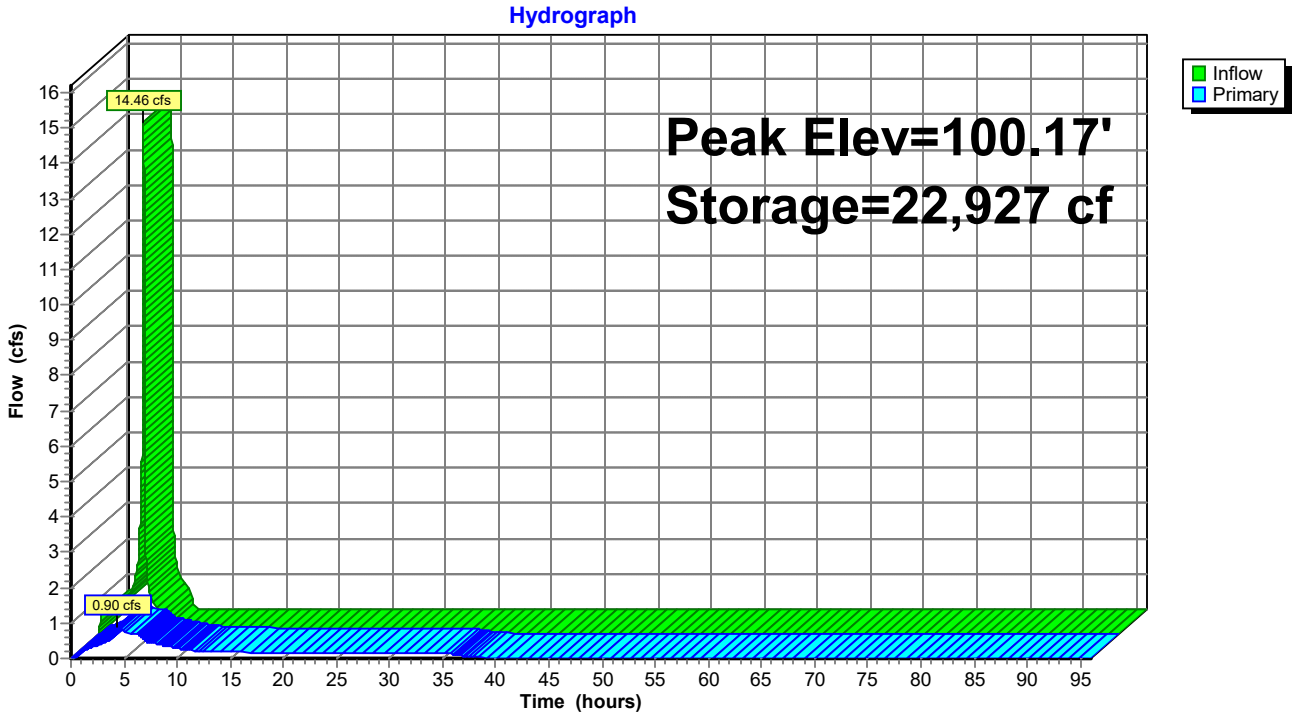
HMP Biofiltration Basin BMP-A3



Not to scale

Alt #6

Pond 17P: BMP-A3 Alt 4



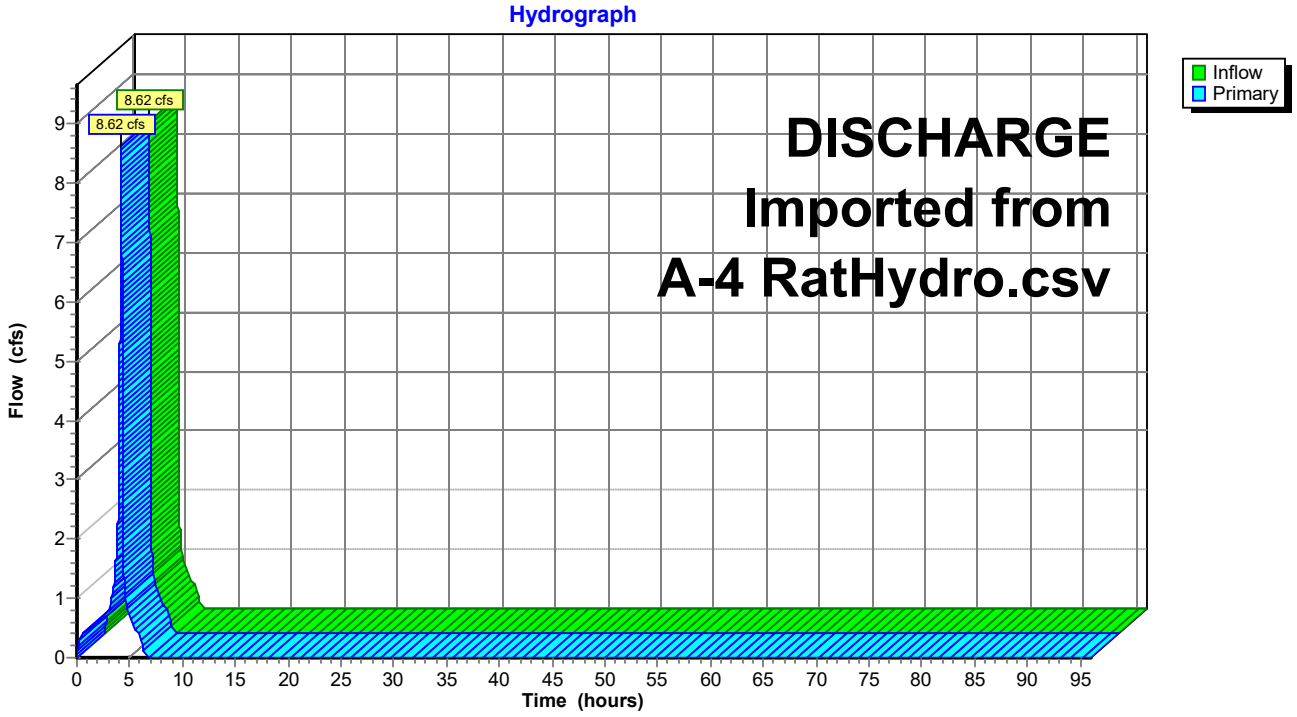
Summary for Link 11L: BMP-A4 100-yr Inflow

Inflow = 8.62 cfs @ 4.20 hrs, Volume= 0.535 af
Primary = 8.62 cfs @ 4.20 hrs, Volume= 0.535 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.001 hrs

DISCHARGE Imported from A-4 RatHydro.csv

Link 11L: BMP-A4 100-yr Inflow



Summary for Pond 18P: BMP-A4 Alt 4

Inflow	=	8.62 cfs @	4.20 hrs,	Volume=	0.535 af
Outflow	=	5.28 cfs @	4.31 hrs,	Volume=	0.534 af, Atten= 39%, Lag= 6.5 min
Primary	=	5.28 cfs @	4.31 hrs,	Volume=	0.534 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.001 hrs
Peak Elev= 101.72' @ 4.31 hrs Surf.Area= 1,609 sf Storage= 10,896 cf

Plug-Flow detention time= 324.6 min calculated for 0.534 af (100% of inflow)
Center-of-Mass det. time= 324.7 min (542.8 - 218.1)

Volume	Invert	Avail.Storage	Storage Description
#1	93.50'	11,343 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
93.50	1,609	0.0	0	0	1,609
98.50	1,609	95.0	7,643	7,643	2,320
100.00	1,609	20.0	483	8,125	2,533
102.00	1,609	100.0	3,218	11,343	2,818

Device	Routing	Invert	Outlet Devices
#1	Primary	93.50'	**18.0" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 93.50' / 92.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	93.50'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	101.50'	**36.0" x 36.0" Horiz. Grate** C= 0.600 in 36.0" x 36.0" Grate (100% open area) Limited to weir flow at low heads

Primary OutFlow Max=5.28 cfs @ 4.31 hrs HW=101.72' TW=93.93' (Dynamic Tailwater)
- **1=Culvert** (Passes 5.28 cfs of 22.64 cfs potential flow)
  - **2=Orifice** (Orifice Controls 1.17 cfs @ 13.44 fps)
  - **3=Grate** (Weir Controls 4.10 cfs @ 1.54 fps)

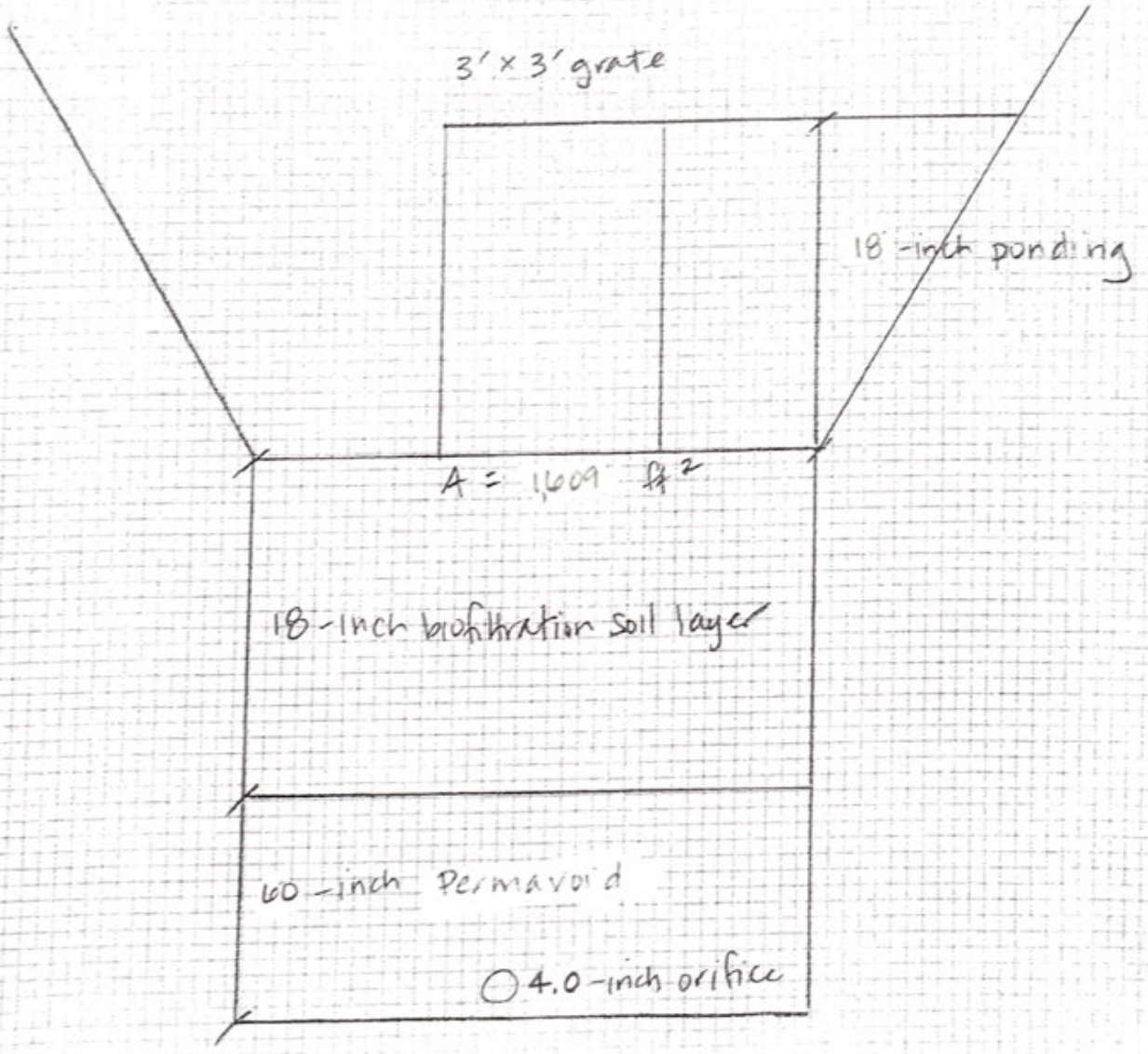
PASCO LARET SUITER
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Fox Point

Date 5/8/2020

Job# 3029

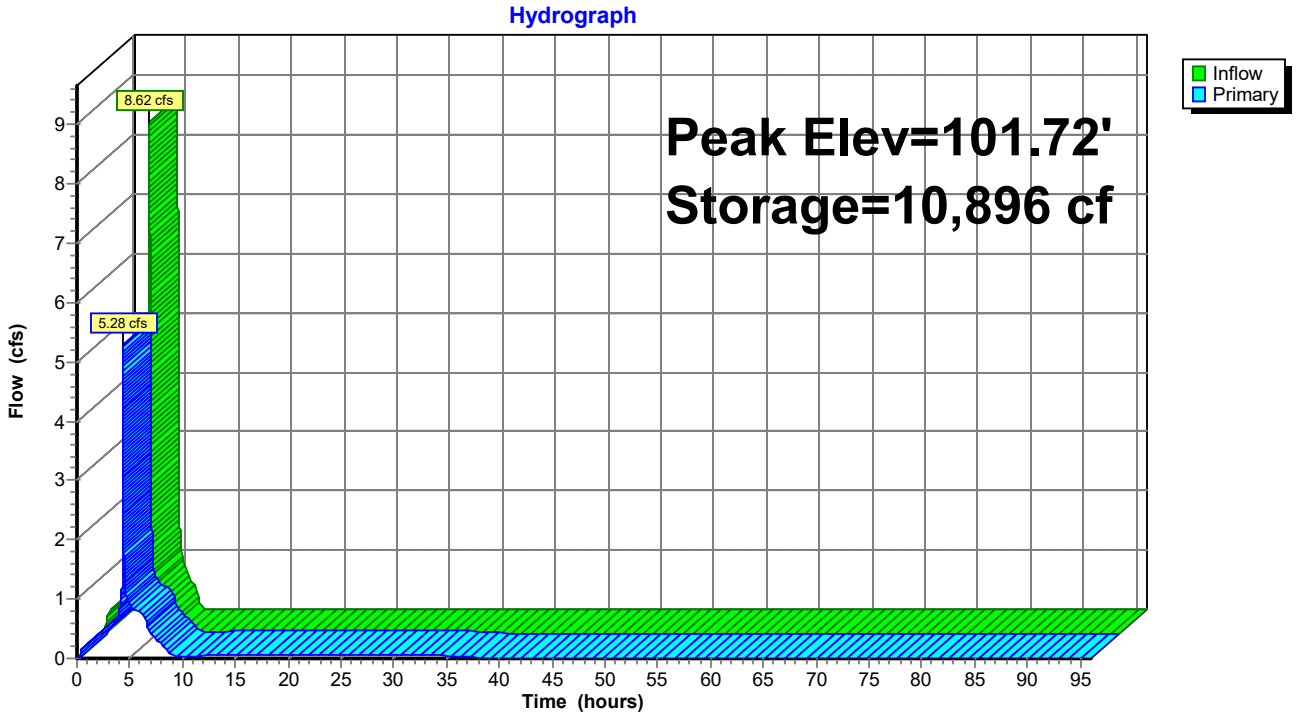
HMP Biofiltration Basin BMP-A4



Not to scale

A1+ #6

Pond 18P: BMP-A4 Alt 4



Summary for Pond 24P: VAULT

Inflow	=	7.85 cfs @	4.31 hrs,	Volume=	2.263 af
Outflow	=	2.38 cfs @	5.70 hrs,	Volume=	2.262 af, Atten= 70%, Lag= 83.6 min
Primary	=	2.38 cfs @	5.70 hrs,	Volume=	2.262 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.001 hrs
Peak Elev= 97.27' @ 5.70 hrs Surf.Area= 2,809 sf Storage= 27,160 cf

Plug-Flow detention time= 532.8 min calculated for 2.262 af (100% of inflow)
Center-of-Mass det. time= 531.0 min (1,298.3 - 767.3)

Volume	Invert	Avail.Storage	Storage Description
#1	87.60'	36,517 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
87.60	2,809	0.0	0	0	2,809
100.60	2,809	100.0	36,517	36,517	5,251

Device	Routing	Invert	Outlet Devices
#1	Primary	87.60'	**36.0" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 87.60' / 86.60' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	87.60'	**2.7" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	97.00'	**24.0" W x 6.0" H Vert. Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	100.10'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 0.50 Width (feet) 45.00 45.00 0.00

Primary OutFlow Max=2.38 cfs @ 5.70 hrs HW=97.27' (Free Discharge)
└**1=Culvert** (Passes 2.38 cfs of 113.19 cfs potential flow)
  ├**2=Orifice** (Orifice Controls 0.59 cfs @ 14.88 fps)
  ├**3=Orifice** (Orifice Controls 1.79 cfs @ 1.67 fps)
  └**4=Custom Weir** (Controls 0.00 cfs)

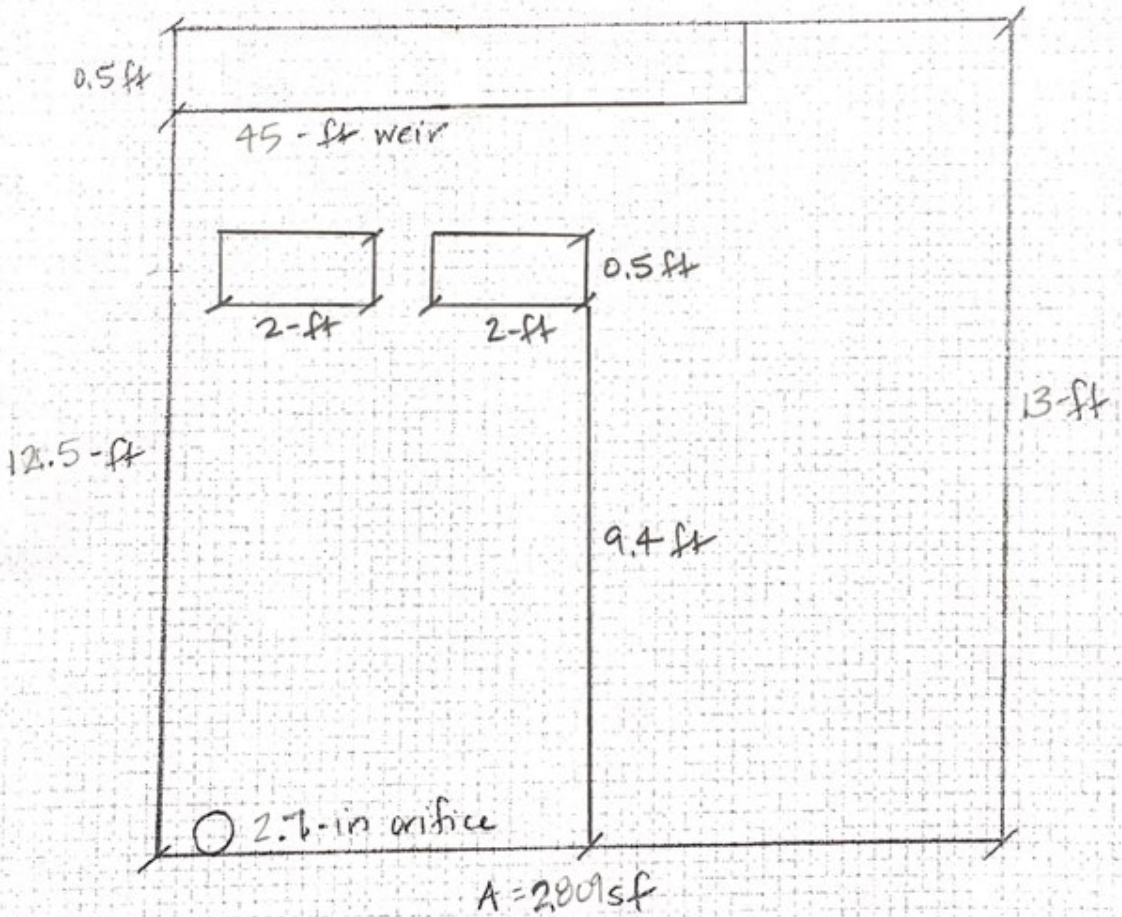
PASCO LARET SUITER & ASSOCIATES

Fox Point

Date 5/8/2020

Job# 3084

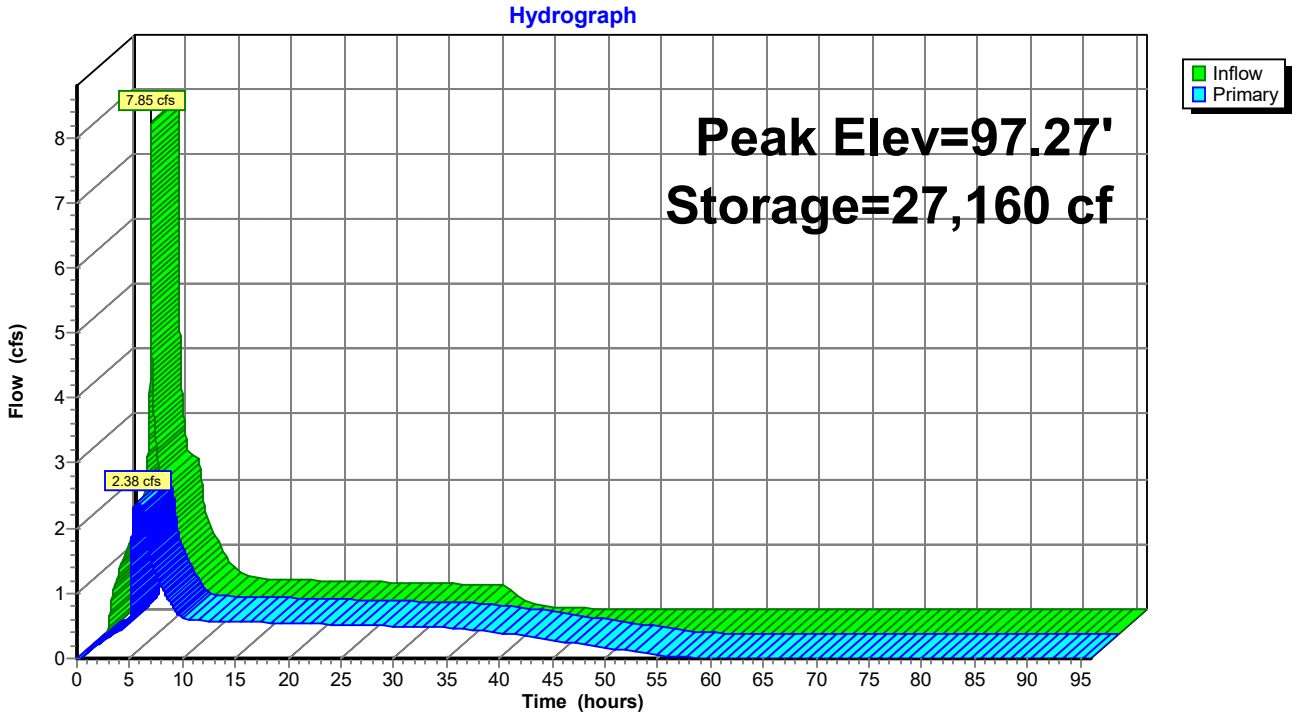
Vault



Not to scale

Attach 6

Pond 24P: VAULT



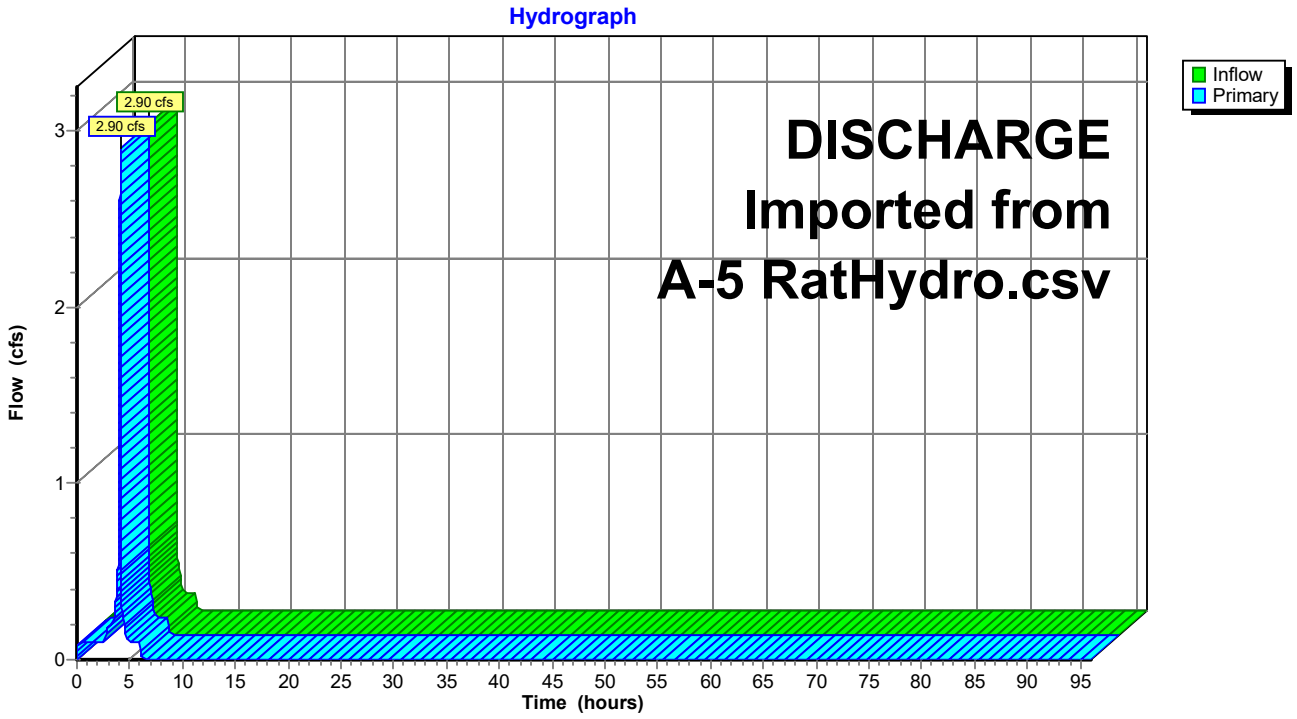
Summary for Link 15L: BMP-A5 100-yr Inflow

Inflow	=	2.90 cfs @	4.08 hrs, Volume=	0.097 af
Primary	=	2.90 cfs @	4.08 hrs, Volume=	0.097 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.001 hrs

DISCHARGE Imported from A-5 RatHydro.csv

Link 15L: BMP-A5 100-yr Inflow



Summary for Pond 14P: BMP-A5

Inflow	=	2.90 cfs @	4.08 hrs, Volume=	0.097 af
Outflow	=	2.87 cfs @	4.08 hrs, Volume=	0.097 af, Atten= 1%, Lag= 0.1 min
Primary	=	2.87 cfs @	4.08 hrs, Volume=	0.097 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.001 hrs
Peak Elev= 101.17' @ 4.08 hrs Surf.Area= 221 sf Storage= 956 cf

Plug-Flow detention time= 215.3 min calculated for 0.097 af (100% of inflow)
Center-of-Mass det. time= 215.4 min (424.3 - 208.9)

Volume	Invert	Avail.Storage	Storage Description
#1	95.50'	1,028 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
95.50	221	0.0	0	0	221
98.50	221	95.0	630	630	379
100.00	221	20.0	66	696	458
101.50	221	100.0	332	1,028	537

Device	Routing	Invert	Outlet Devices
#1	Primary	95.50'	**12.0" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 95.50' / 94.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	95.50'	**0.5" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	101.00'	**36.0" x 36.0" Horiz. Grate** C= 0.600 in 36.0" x 36.0" Grate (100% open area) Limited to weir flow at low heads

Primary OutFlow Max=2.86 cfs @ 4.08 hrs HW=101.17' (Free Discharge)
└**1=Culvert** (Passes 2.86 cfs of 7.21 cfs potential flow)
  └**2=Orifice** (Orifice Controls 0.02 cfs @ 11.45 fps)
  └**3=Grate** (Weir Controls 2.85 cfs @ 1.36 fps)

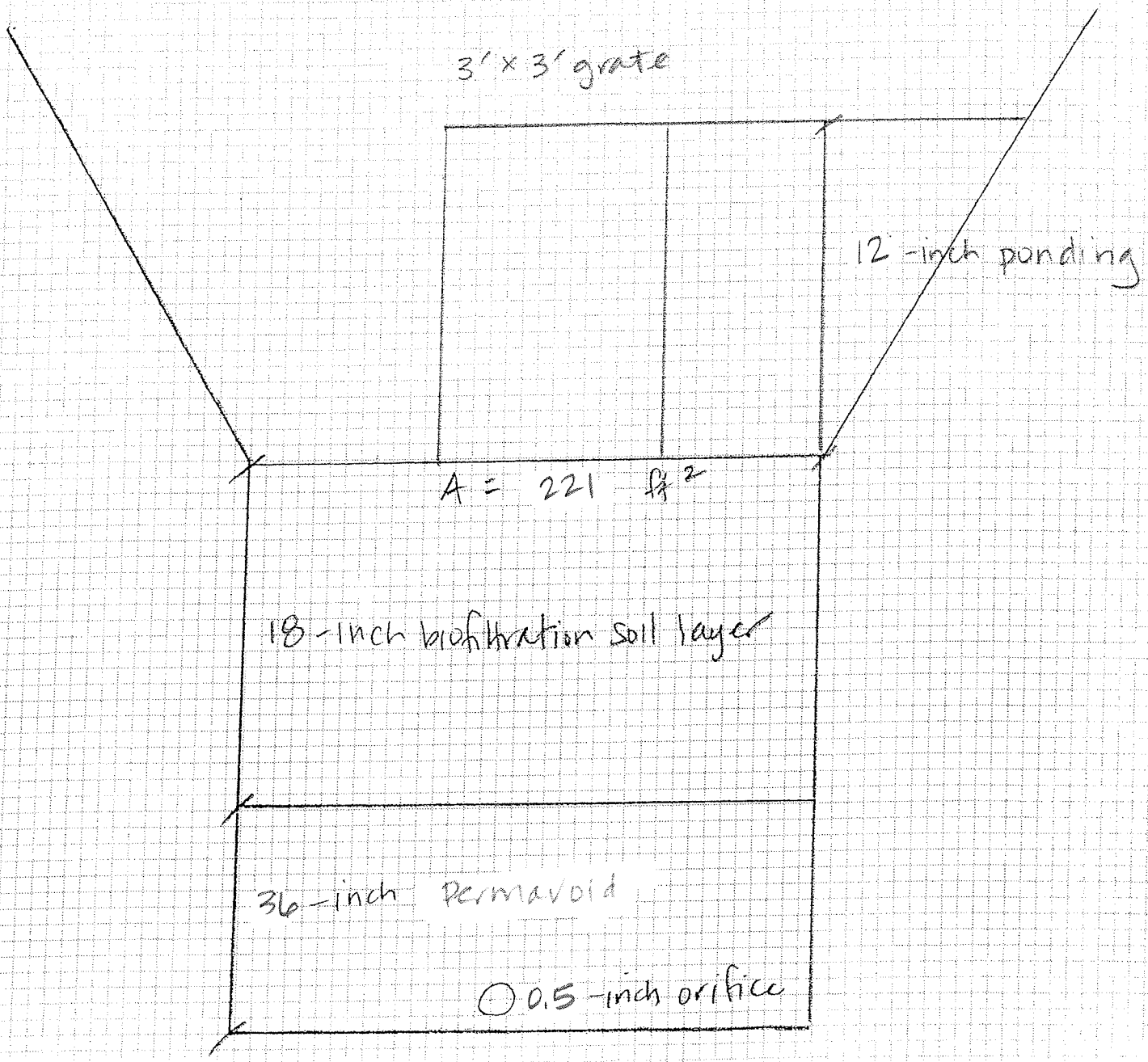
PASCO LARET SUITER & ASSOCIATES

Fox Point

Date 2/26/2020

Job# 3089

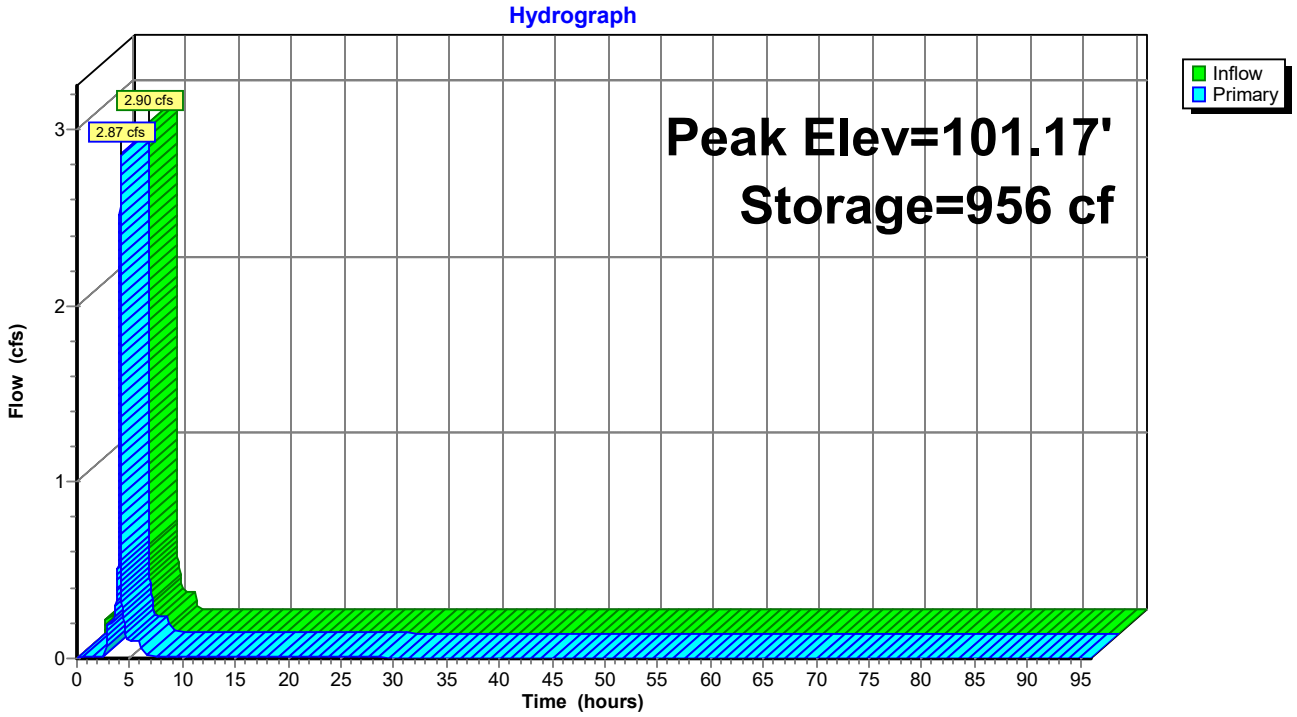
HMP Biofiltration Basin BMP-A5

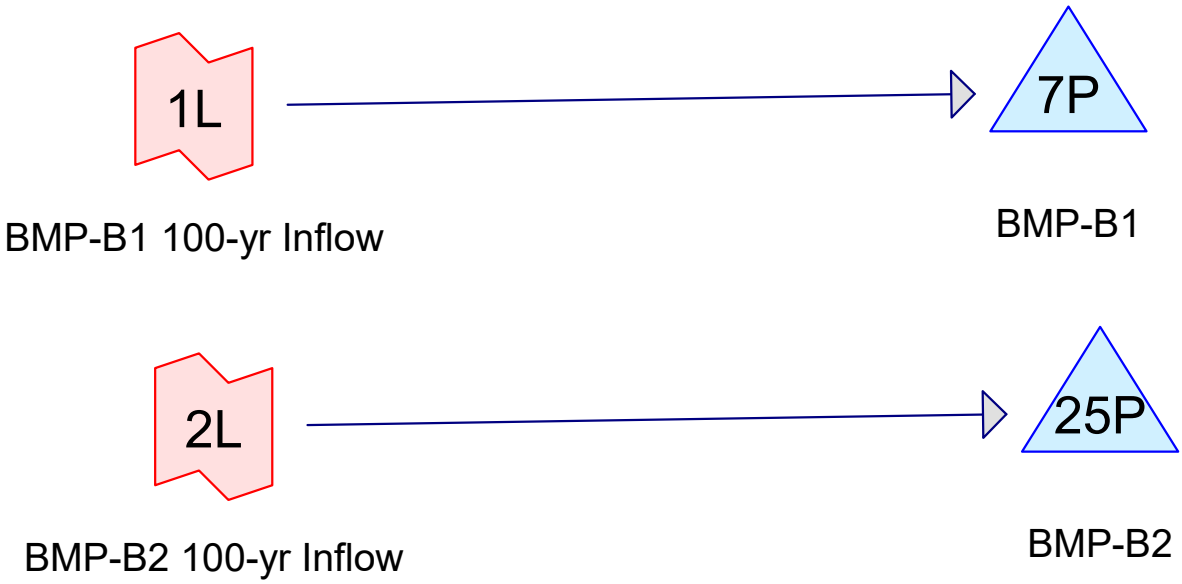


Not to scale

Alt #3

Pond 14P: BMP-A5





Subcat Reach Pond Link

Routing Diagram for 3084_Alt4
Prepared by Pasco Laret Suiter & Associates, Printed 7/22/2020
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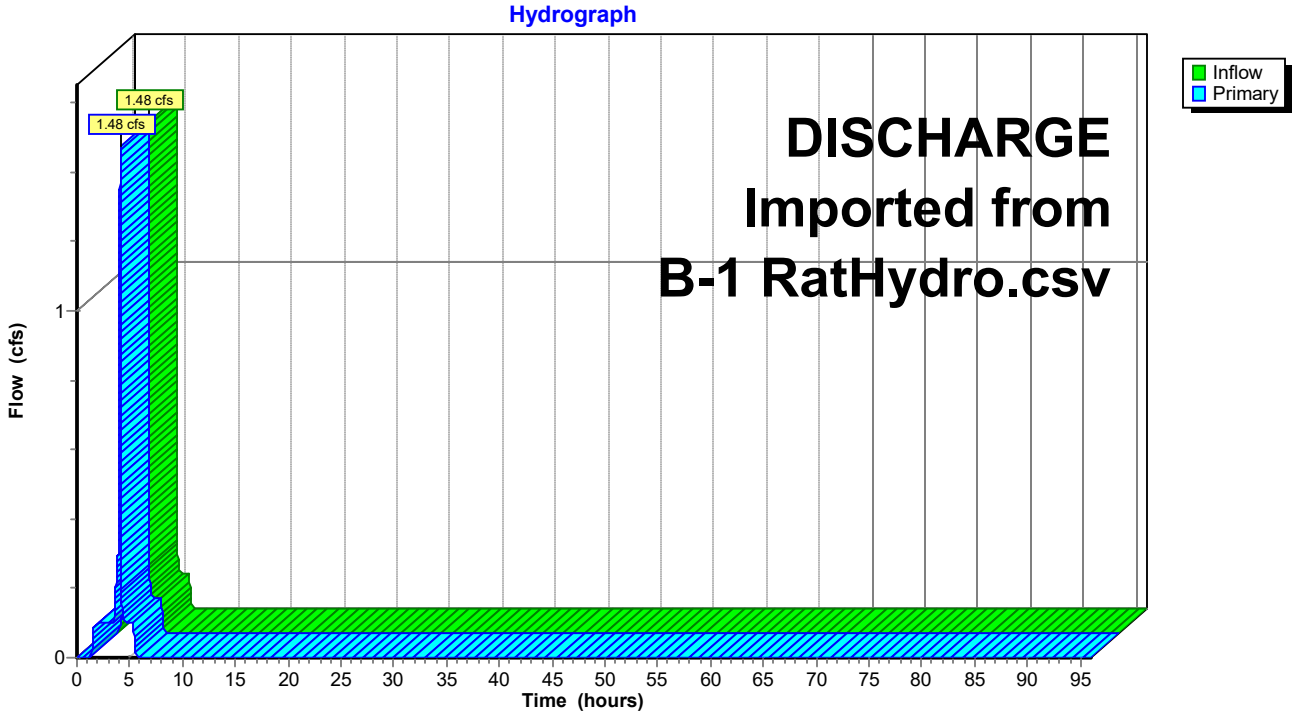
Summary for Link 1L: BMP-B1 100-yr Inflow

Inflow = 1.48 cfs @ 4.08 hrs, Volume= 0.053 af
Primary = 1.48 cfs @ 4.08 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.001 hrs

DISCHARGE Imported from B-1 RatHydro.csv

Link 1L: BMP-B1 100-yr Inflow



Summary for Pond 7P: BMP-B1

Inflow	=	1.48 cfs @	4.08 hrs, Volume=	0.053 af
Outflow	=	1.42 cfs @	4.09 hrs, Volume=	0.053 af, Atten= 4%, Lag= 0.4 min
Primary	=	1.42 cfs @	4.09 hrs, Volume=	0.053 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.001 hrs
Peak Elev= 101.11' @ 4.09 hrs Surf.Area= 546 sf Storage= 1,288 cf

Plug-Flow detention time= 697.3 min calculated for 0.053 af (100% of inflow)
Center-of-Mass det. time= 697.2 min (916.8 - 219.6)

Volume	Invert	Avail.Storage	Storage Description
#1	97.50'	1,502 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
97.50	546	0.0	0	0	546
98.50	546	95.0	519	519	629
100.00	546	20.0	164	683	753
101.50	546	100.0	819	1,502	877

Device	Routing	Invert	Outlet Devices
#1	Primary	97.50'	**12.0" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 97.50' / 96.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	97.50'	**0.5" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	101.00'	**36.0" x 36.0" Horiz. Grate** C= 0.600 in 36.0" x 36.0" Grate (100% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.42 cfs @ 4.09 hrs HW=101.11' (Free Discharge)
└**1=Culvert** (Passes 1.42 cfs of 5.75 cfs potential flow)
  ├**2=Orifice** (Orifice Controls 0.01 cfs @ 9.12 fps)
  └**3=Grate** (Weir Controls 1.40 cfs @ 1.08 fps)

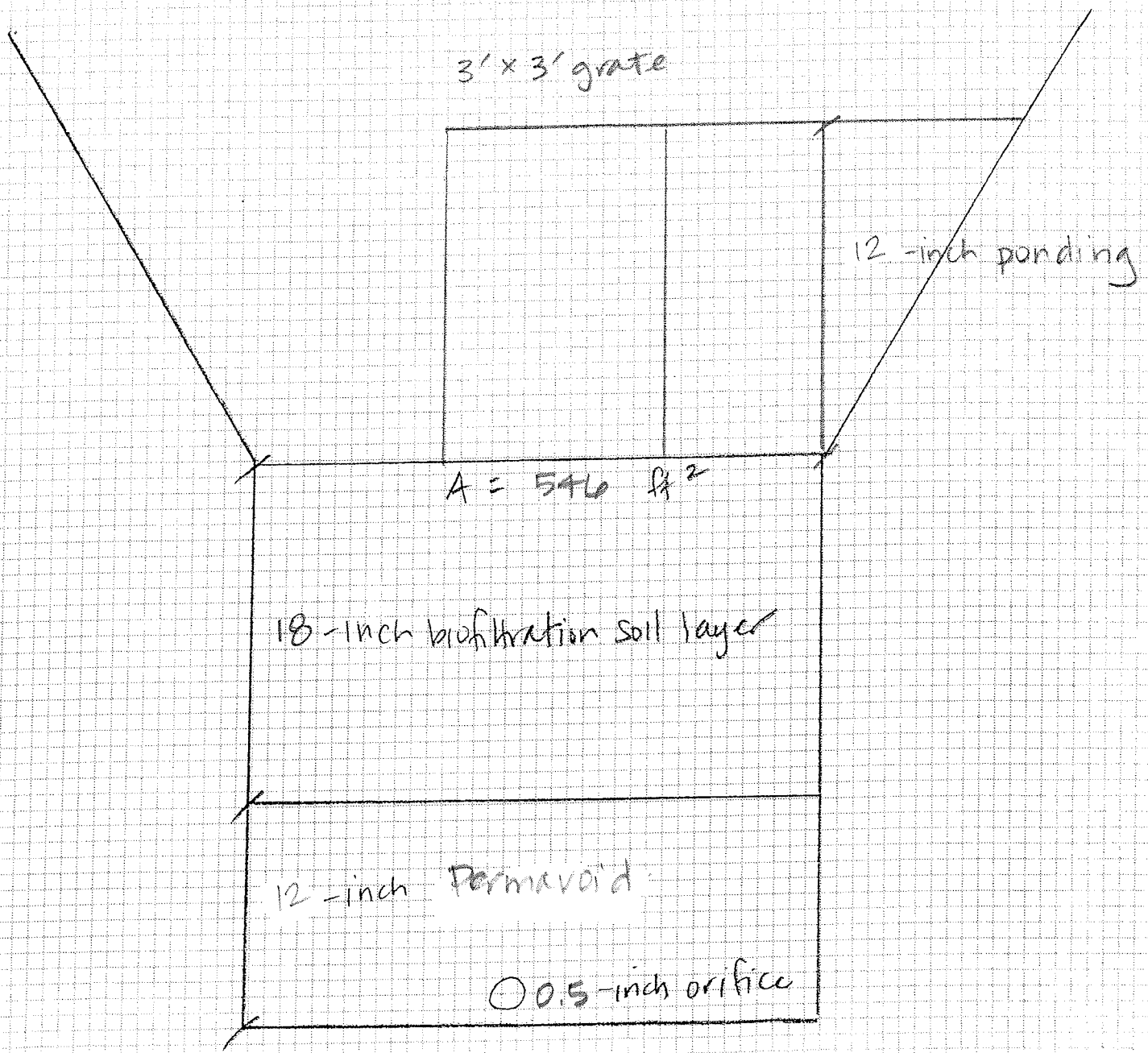
PASCO LARET SUITER & ASSOCIATES

For Paint

Date 2/26/2020

Job# 3089

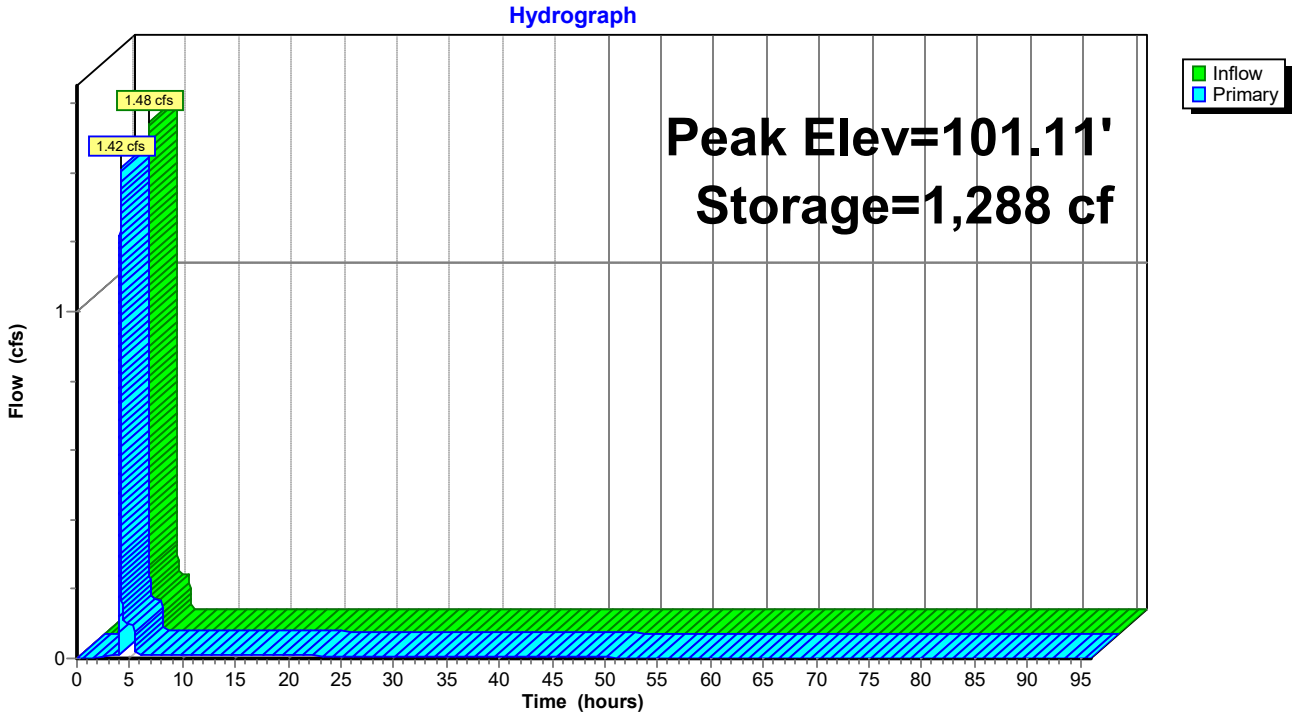
HMP Biofiltration Basin BMP - B1



Not to scale

Alt #3

Pond 7P: BMP-B1



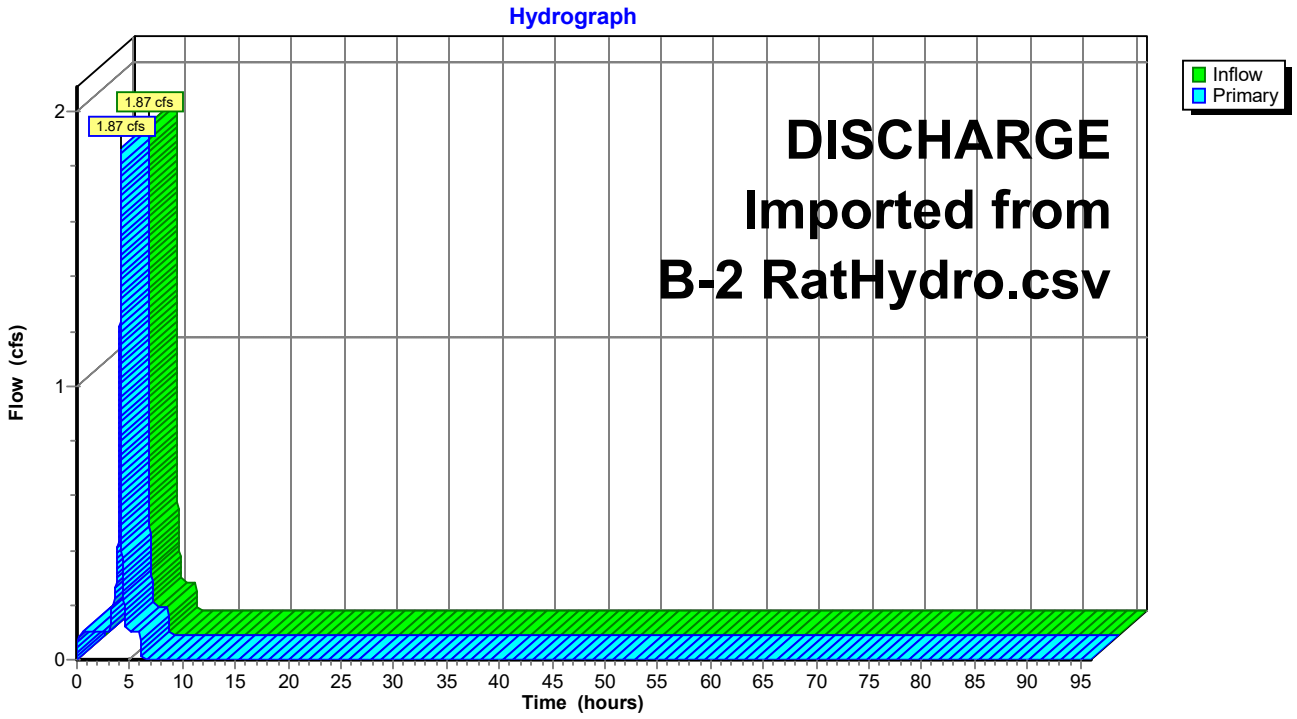
Summary for Link 2L: BMP-B2 100-yr Inflow

Inflow = 1.87 cfs @ 4.13 hrs, Volume= 0.087 af
Primary = 1.87 cfs @ 4.13 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.001 hrs

DISCHARGE Imported from B-2 RatHydro.csv

Link 2L: BMP-B2 100-yr Inflow



Summary for Pond 25P: BMP-B2

Inflow	=	1.87 cfs @	4.13 hrs,	Volume=	0.087 af
Outflow	=	1.83 cfs @	4.14 hrs,	Volume=	0.087 af, Atten= 2%, Lag= 0.2 min
Primary	=	1.83 cfs @	4.14 hrs,	Volume=	0.087 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.001 hrs
Peak Elev= 101.13' @ 4.14 hrs Surf.Area= 400 sf Storage= 1,712 cf

Plug-Flow detention time= 665.1 min calculated for 0.087 af (100% of inflow)
Center-of-Mass det. time= 665.1 min (874.1 - 209.0)

Volume	Invert	Avail.Storage	Storage Description
#1	95.50'	1,860 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
95.50	400	0.0	0	0	400
98.50	400	95.0	1,140	1,140	613
100.00	400	20.0	120	1,260	719
101.50	400	100.0	600	1,860	825

Device	Routing	Invert	Outlet Devices
#1	Primary	95.50'	**12.0" Round Culvert** L= 15.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 95.50' / 95.35' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	95.50'	**0.5" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	101.00'	**36.0" x 36.0" Horiz. Grate** C= 0.600 in 36.0" x 36.0" Grate (100% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.83 cfs @ 4.14 hrs HW=101.13' (Free Discharge)
└**1=Culvert** (Passes 1.83 cfs of 10.66 cfs potential flow)
  └**2=Orifice** (Orifice Controls 0.02 cfs @ 11.40 fps)
  └**3=Grate** (Weir Controls 1.81 cfs @ 1.17 fps)

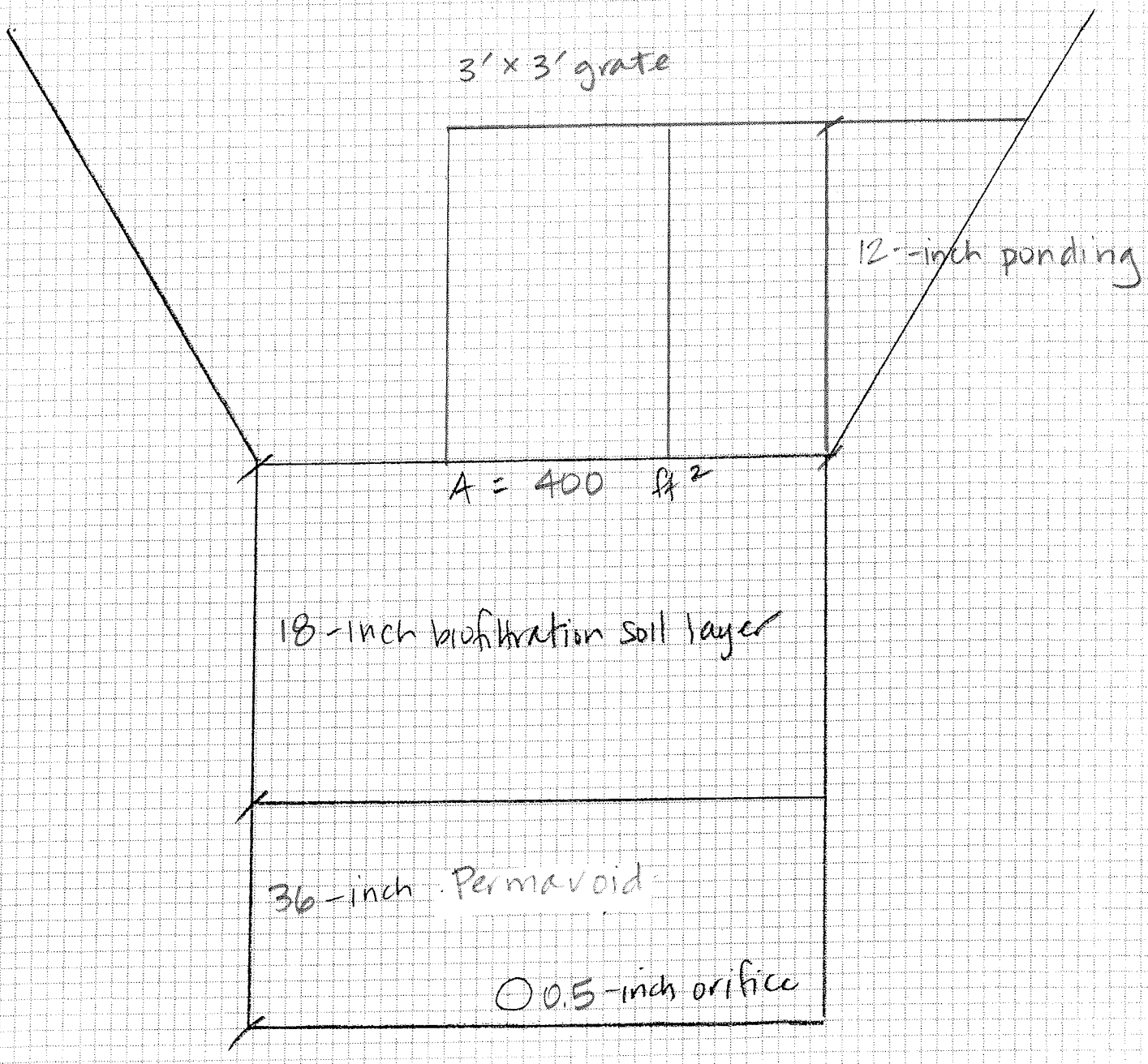
PASCO LARET SUITER & ASSOCIATES

Fox Point

Date 2/26/2020

Job# 3089

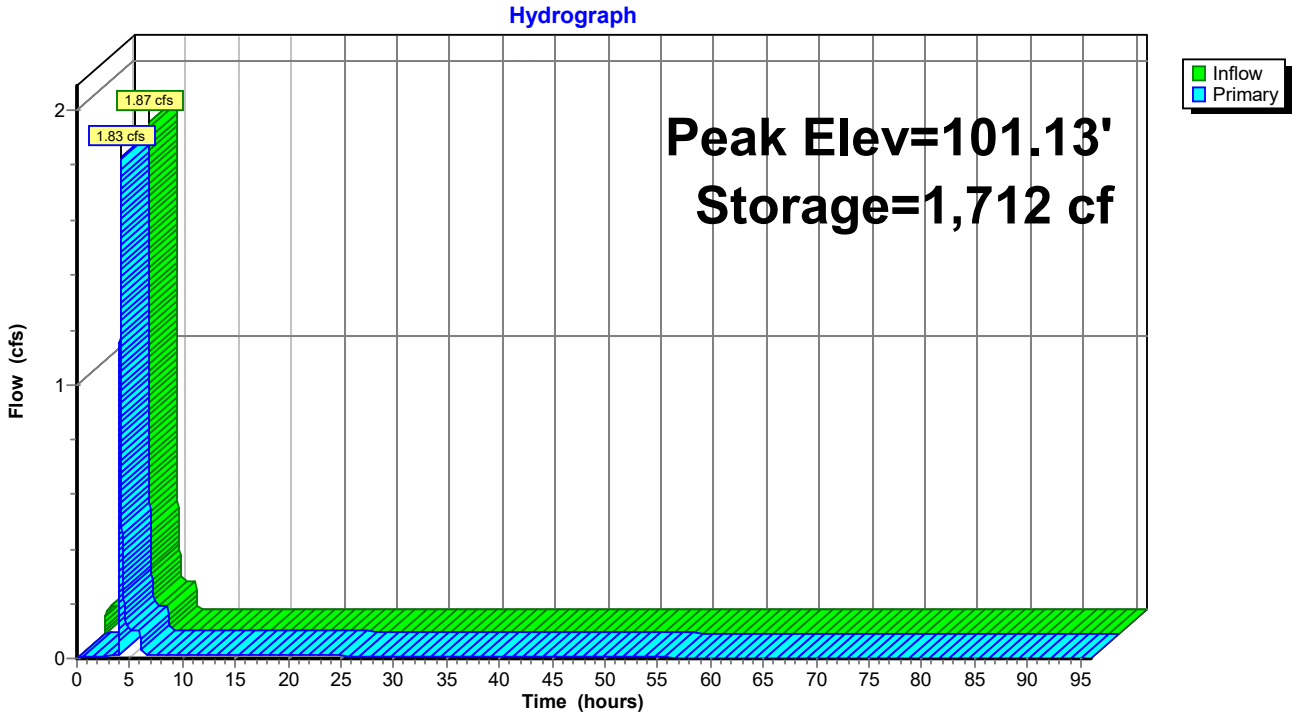
HMP Biofiltration Basin BMP-B2



Not to scale

Alt #3

Pond 25P: BMP-B2



APPENDIX M STORMWATER QUALITY MANAGEMENT PLAN

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CITY OF ENCINITAS
STORMWATER INTAKE FORM AND PRIORITY DEVELOPMENT PROJECT PRELIMINARY STORMWATER QUALITY MANAGEMENT PLAN (SWQMP)

FOR:
FOX POINT FARMS

1150 QUAIL GARDENS DRIVE
ENCINITAS, CA 92024
APN 254-612-12

PREPARED BY:
TYLER G. LAWSON
PASCO LARET SUITER & ASSOCIATES, INC
535 N. HIGHWAY 101, SUITE A
SOLANA BEACH, CA 92075
PH: (858) 259-8212

PREPARED FOR:
NOLEN COMMUNITIES, LLC
1680 N. COAST HIGHWAY 101, #51
ENCINITAS, CA 92024

DATE OF SWQMP:
12/17/2019
Revised 05/19/2020
Revised 07/24/2020

GRADING PLAN PREPARED BY:
PASCO LARET SUITER & ASSOCIATES, INC
535 N. HIGHWAY 101, SUITE A
SOLANA BEACH, CA 92075
PH: (858) 259-8212

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PREPARER'S CERTIFICATION

I hereby declare that I am the Engineer in Responsible Charge of design of storm water 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 Priority Development Project (PDP) requirements of the City of Encinitas BMP Design Manual, which is a design manual for compliance with local City of Encinitas and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

I have read and understand that the City Engineer has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the BMP Design Manual. I certify that this PDP SWQMP 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 Storm Water Quality Management Plan (SWQMP) by the City Engineer is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.

Engineer's Seal

Engineer of Work's Signature, PE Number

Tyler G. Lawson
Print Name

Pasco Laret Suiter & Associates
Company

Date

PROJECT OWNER'S CERTIFICATION

This PDP SWQMP has been prepared for NOLEN COMMUNITIES, LLC by PASCO LARET SUITER & ASSOCIATES. The PDP SWQMP is intended to comply with the PDP requirements of the City of Encinitas BMP Design Manual, which is a design manual for compliance with local City of Encinitas and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan. Once the undersigned transfers its interests in the property, its successor-in-interest shall bear the aforementioned responsibility to implement the best management practices (BMPs) described within this plan, including ensuring on-going operation and maintenance of structural BMPs. A signed copy of this document shall be available on the subject property into perpetuity.

_____

Project Owner's Signature

_____

Print Name

_____

Company

_____

Date

SUBMITTAL RECORD

Use this table to keep a record of submittals of this PDP SWQMP. Each time the PDP SWQMP is re-submitted, provide the date and status of the project. In the fourth column, summarize the changes that have been made or indicate if response to plancheck comments is included. When applicable, insert response to plancheck comments behind this page.

Submittal Number	Date	Project Status	Summary of Changes
1	12/17/2019	☑ Preliminary Design/Planning/ CEQA □ Final Design	Initial Submittal
2	2/28/2020	☑ Preliminary Design / Planning/ CEQA □ Final Design	Second Submittal
3	5/19/2020	☑ Preliminary Design / Planning/ CEQA □ Final Design	Third Submittal
4	7/24/2020	☑Preliminary Design / Planning/ CEQA □ Final Design	Fourth Submittal

PROJECT IDENTIFICATION

Project/Applicant Name: Fox Point Farms	
Permit/Application Number:	Date: 2/28/2020
Site Address: 1150 Quail Gardens Drive, Encinitas, CA 92024	APN: 254-612-12

Scope of work/project description:

The project proposes the construction of 250 multi-family homes, a 3,500 SF restaurant, a 10,000 SF recreational center, approximately 5,000 SF of multi-use event space, paved private driveways and alleyways, onsite grading and supporting infrastructure such as sewer and water. Also proposed as a part of this development is the widening of Sidonia Street along the frontage of the property which will include green street improvements.

DETERMINATION OF PROJECT STATUS AND REQUIREMENTS

This form will identify permanent, post construction BMP requirements. Refer to City of Encinitas Stormwater BMP Design Manual for guidance.

Step 1: Is the project a "development project"? Development projects are defined as "construction, rehabilitation, redevelopment, or reconstruction of any public or private projects". See Section 1.3 and Table 1-2 of the manual for guidance. For example, interior remodels, roof replacements, and electrical and plumbing work are not development projects.	☑ Yes	***Go to Step 2.***
	□ No	***Stop.*** Permanent BMP requirements do not apply. No SWQMP will be required. Provide discussion below.

If "No", provide discussion / justification explaining why the project is not a "development project":

Step 2: Complete questions below for Project Type Determination.

The project is (select one): □ New Development ☑ Redevelopment

The total proposed, newly created and/or replaced impervious area is: 401,552 ft^2

Is the project in any of the following categories, (a) through (f) below?

Yes ☑	No □	(a)	New development projects or redevelopment projects that create and/or replaced 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects.
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.
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 (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.
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 discharge directly to an Environmentally Sensitive Area (ESA). "Discharge 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 SDRWQCB; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and SDRWQCB; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees. See manual Section 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. This category includes retail gasoline outlets that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic 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 manual Section 1.4.2 for additional guidance.*

Does the project meet the definition of one or more of the PDP categories (a) through (f) listed above?

☑ Yes – **The project is a Priority Development Project, the applicant shall provide PDP Post Construction BMPs and *continue to Step 3*.**

□No – **The project is a Standard or Basic Project. *Stop here and complete the "City of Encinitas Stormwater Intake Form for All Developments and Standard Projects SWQMP".***

The following is for ***redevelopment PDPs*** only:

The area of existing (pre-project) impervious area at the project site is: 121,250 ft^2 (A)

The total proposed newly created or replaced impervious area is: 401,552 ft^2 (B)

Percent impervious surface created or replaced (B/A)*100: 331%

The percent impervious surface created or replaced is (select one based on the above calculation):

□ Less than or equal to fifty percent (50%) – only new and/or replaced impervious areas are considered PDP subject to treatment and HMP criteria

OR

☑ Greater than fifty percent (50%) – the entire site is a PDP; treatment and HMP criteria apply to entire site regardless of whether it is replaced

Step 3 (PDPs only): Do hydromodification control requirements apply? See Section 1.6 of the BMP Design Manual for guidance.	☑ Yes	PDP structural BMPs required for pollutant control (Chapter 5) and hydromodification control (Chapter 6). ***Go to Step 4.***
	□ No	PDP structural BMPs required for pollutant control (Chapter 5) only. Provide brief discussion of exemption to hydromodification control below. ***Go to "Site Information Checklist"***

Discussion / justification if hydromodification control requirements do not apply:

Step 4 (PDPs subject to treatment and hydromodification controls): Does protection of critical coarse sediment yield areas apply based on review of City of Encinitas Potential Critical Coarse Sediment Yield Area Map? See Section 6.2 of the BMP Design Manual for guidance.	□ Yes	Management measures required for protection of critical coarse sediment yield areas (Chapter 6.2). ***Go to "Site Information Checklist"***
	☑ No	Management measures not required for protection of critical coarse sediment yield areas. Provide brief discussion below. ***Go to "Site Information Checklist"***

Discussion / justification if management measures not required for protection of critical coarse sediment yield areas:

The project site does not fall in a potential Critical Coarse Sediment Yield Area. Refer to Attachment 2b.

SITE INFORMATION CHECKLIST

Project's Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	Carlsbad HU, San Marcos HA, Batiquitos HSA 904.51
Parcel Area (Total area of Assessor's Parcel(s) associated with the project)	21.478 Acres (935,599 Square Feet)
Area to be Disturbed by the Project (Project Area)	19.710 Acres (858,562 Square Feet)
Project Proposed Impervious Area (Subset of Project Area)	9.22 Acres (401,552 Square Feet)
Project Proposed Pervious Area (Subset of Project Area)	10.49 Acres (457,010 Square Feet)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area.	

Description of Existing Site Condition

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:

Existing Land Cover includes (select all that apply):

☑ Vegetative Cover

☑ Non-Vegetated Pervious Areas

☑ Impervious Areas

Description / Additional Information:

Currently, a majority of the site is comprised of greenhouse structures, processing facilities, and paved access roads. However, adopting a City of Encinitas city council requirement for this storm water quality management plan, no impervious area credit will be taken for existing greenhouses in the pre-project condition.

Underlying soil belongs to Hydrologic Soil Group (select all that apply):

□ NRCS Type A

☑ NRCS Type B

□ NRCS Type C

☑ NRCS Type D

Per the infiltration testing performed onsite, a no infiltration condition has been assumed for this site, therefore Type D soils have been used for the hydromodification analysis.

Approximate Depth to Groundwater (GW):

□ GW Depth < 5 feet

□ 5 feet < GW Depth < 10 feet

☑ 10 feet < GW Depth < 20 feet

□ GW Depth > 20 feet

Existing Natural Hydrologic Features (select all that apply):

□ Watercourses

□ Seeps

□ Springs

□ Wetlands

☑ None

Description / Additional Information:

Description of Existing Site Drainage Patterns

How is storm water runoff conveyed from the site? At a minimum, this description should answer:

1) Is existing drainage conveyance natural or urban?
2) Is runoff from offsite conveyed through the site? If yes, quantify all 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, storm water 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.

Describe existing site drainage patterns:

In its current state, a majority of the site drains from east to west and enters Sidonia Street via surface/sheet flow. The northeast corner of the site flows northeast via surface flow and is collected in a concrete brow ditch and conveyed north where it discharges into the open space lot adjacent to the property. The southerly quarter of the site flows south into an existing swale and is collected and conveyed east via storm drain and enters the existing storm drain system within Quail Gardens Drive.

Description of Proposed Site Development

Project Description / Proposed Land Use and/or Activities:

The proposed project includes the demolition of all onsite structures and the construction of 250 multi-family homes, a 3,500 SF restaurant, a 10,000 SF recreational center, approximately 5,000 SF of multi-use event space, paved private driveways and alleyways, onsite grading and supporting infrastructure such as sewer and water. Also proposed as a part of this development is the widening of Sidonia Street along the frontage of the property which will include green street improvements. Proposed pad elevations range from 323 feet at the north end of the property to approximately 313 feet along the westerly edge of the property.

As shown on the Post-Development Hydrology Node Map included in the drainage study, Drainage Basin A consists of the majority of the site. Runoff from Drainage Basin A surface flows westerly to proposed storm drain which conveys flow to proposed biofiltration basins located adjacent to Sidonia Street. After being treated and stored in the proposed storm water vault, runoff discharges to the proposed storm drain system within Sidonia Street and travels north where it eventually connects to the existing storm drain system located at the north end of the street.

Drainage Basin B is located in the southeastern portion of the site. Runoff from Drainage Basin B flows to proposed biofiltration basins for treatment and storage. The biofiltration basins discharge to the proposed storm drain which flows easterly and connects to the existing storm drain system located within Quail Gardens Drive.

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):

Impervious features include 250 multi-family buildings, a 3,500 SF restaurant, a 10,000 SF recreational center, and approximately 5,000 SF of multi-use event space. Paved private driveways and alleyways as well as pathways and hardscape between building use for pedestrian circulation throughout the site are also proposed as a part of this development.

List/describe proposed pervious features of the project (e.g., landscape areas):

Pervious features include approximately 180,000 SF of landscape area, DG pathways and parking lot, an edible paseo along Sidonia Street, and approximately 240,000 SF of proposed agricultural land located on the northern portion of the property.

Does the project include grading and changes to site topography?
☑ Yes

□ No

Description / Additional Information:

Mass grading associated with the private driveways, pads, and agricultural land is proposed over the majority of the site.

Description of Proposed Site Drainage Patterns

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?
☑ Yes

□ No

If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water 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:

The project proposes the construction of a private storm drain system consisting of RCP pipe, cleanouts, inlets, brooks boxes, area drains, perf pipe, and concrete brow ditches for the collection and conveyance of onsite drainage. In addition, biofiltration basins have been sized to handle both treatment and flow control requirements as well as attenuate the 100-year, 6-hour storm event.

In the proposed condition, there are two (2) discharge locations identified as POC-A and POC-B. DMAs A1- A5 drain to POC-A and B1-B2 drain to POC-B. The table below summarizes the pre and post-project peak flow rates in the mitigated and unmitigated conditions. Refer to the DMA Map included in the Appendix for information on the DMA locations.

Summary of 100-yr Peak Discharge Rates

	Pre-project	Post-project Undetained	Post-project Detained
	Q100 (cfs)	Q100 (cfs)	Q100 (cfs)
POC-A	17.39	43.16	3.03
POC-B	4.70	3.32	3.20

Refer to the drainage report prepared for this site for detailed calculations.

Identification and Narrative of Receiving Water and Pollutants of Concern

Describe flow path of storm water 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):

A majority of the drainage generated from the site discharges into an existing stream located just north of the property. From there it continues north until it enters Batiquitos Lagoon. Once in the Batiquitos Lagoon the drainage continues west and ultimately discharges into the Pacific Ocean.

Runoff generated from the remainder of the site enters the existing storm drain system within Quail Gardens Drive, travels south, and discharges into the existing reservoir located at the south end of the Encinitas Ranch Golf Course.

List any 303(d) impaired water bodies within the path of storm water 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:

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs / WQIP Highest Priority Pollutant
Batiquitos Lagoon (904.51)	Toxicity	Toxicity
Cottonwood Creek (San Marcos Creek Watershed)	DDT, Sediment, Selenium	DDT, Sediment, Selenium
Pacific Ocean (Batiquitos HSA)	Total Coliform	Total Coliform

Identification of Project Site Pollutants*

***Identification of project site pollutants 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	Expected from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment	X		
Nutrients	X		
Heavy Metals	X		
Organic Compounds	X		
Trash & Debris	X		
Oxygen Demanding Substances	X		
Oil & Grease	X		
Bacteria & Viruses	X		
Pesticides	X		

Hydromodification Management Requirements

Do hydromodification management requirements apply (see Section 1.6 of the BMP Design Manual)?

☑ Yes, hydromodification management flow control structural BMPs required.

□ No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

□ No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

□ No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA for the watershed in which the project resides.

Description / Additional Information (to be provided if a 'No' answer has been selected above):

Critical Coarse Sediment Yield Areas*

*This section only required if hydromodification management requirements apply

Based on the maps provided within the WMAA, do potential critical coarse sediment yield areas exist within the project drainage boundaries?

□ Yes

☑ No, no critical coarse sediment yield areas to be protected based on WMAA maps

If yes, have any of the optional analyses presented in Section 6.2 of the BMP Design Manual been performed?

□ 6.2.1 Verification of Geomorphic Landscape Units (GLUs) Onsite

□ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment

□ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite

□ No optional analyses performed, the project will avoid critical coarse sediment yield areas identified based on WMAA maps

If optional analyses were performed, what was the final result?

□ No critical coarse sediment yield areas to be protected based on verification of GLUs onsite

□ Critical coarse sediment yield areas exist but additional analysis has determined that protection is not required. Documentation attached in Attachment 2.b of the SWQMP.

□ Critical coarse sediment yield areas exist and require protection. The project will implement management measures described in Sections 6.2.4 and 6.2.5 as applicable, and the areas are identified on the SWQMP Exhibit.

Discussion / Additional Information:

Flow Control for Post-Project Runoff*

*This section only required if hydromodification management requirements apply

List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit.

In the proposed condition, there are two (2) points of compliance identified as POC-A and POC-B. Refer to the projects DMA Map for locations.

Has a geomorphic assessment been performed for the receiving channel(s)?

☑ No, the low flow threshold is 0.1Q2 (default low flow threshold)

□ Yes, the result is low flow threshold 0.1Q2

□ Yes, the result is low flow threshold 0.3Q2

□ Yes, the result is low flow threshold 0.5Q2

If a geomorphic assessment has been performed, provide title, date, and preparer:

Discussion / Additional Information: (optional)

Other Site Requirements and Constraints

When applicable, list other site requirements or constraints that will influence storm water 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.

SOURCE CONTROL BMP CHECKLIST

All development projects must implement source control BMPs SC-1 through SC-6 where applicable and feasible. See Chapter 4 and Appendix E of the 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 and/or Appendix E of the manual. Discussion / justification is not required.
- "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 may be provided.

Source Control Requirement	Applied?		
SC-1 Prevention of Illicit Discharges into the MS4	☑ Yes	□ No	□ N/A
SC-2 Storm Drain Stenciling or Signage	☑ Yes	□ No	□ N/A
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	□ Yes	□ No	☑ N/A
SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	□ Yes	□ No	☑ N/A
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☑Yes	□ No	□ N/A
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)			
☑ Onsite storm drain inlets	☑ Yes	□ No	□ N/A
□ Interior floor drains and elevator shaft sump pumps drain to sewer	□ Yes	□ No	☑ N/A
□ Interior parking garages drain to sewer	□ Yes	□ No	☑ N/A
□ Need for future indoor & structural pest control	□ Yes	□ No	☑ N/A
☑ Landscape/outdoor pesticide use	☑ Yes	□ No	□ N/A
☑ Pools, spas, ponds, decorative fountains, and other water features	☑ Yes	□ No	□ N/A
☑ Food service	☑ Yes	□ No	□ N/A
☑ Refuse/Trash areas must be covered	☑ Yes	□ No	□ N/A
□ Industrial processes	□ Yes	□ No	☑ N/A
□ Outdoor storage of equipment or materials must be covered	□ Yes	□ No	☑ N/A
□ Vehicle and equipment cleaning	□ Yes	□ No	☑ N/A
□ Vehicle/equipment repair and maintenance	□ Yes	□ No	☑ N/A
□ Fuel dispensing areas	□ Yes	□ No	☑ N/A
□ Loading docks	□ Yes	□ No	☑ N/A
□ Fire sprinkler test water	□ Yes	□ No	☑ N/A
□ Miscellaneous drain or wash water	□ Yes	□ No	☑ N/A
☑ Plazas, sidewalks, and parking lots	☑ Yes	□ No	□ N/A

Discussion / justification if SC-1 through SC-6 not implemented. Justification must be provided for ALL "No" answers shown above.

SITE DESIGN BMP CHECKLIST

All development projects must implement site design BMPs SD-1 through SD-8 where applicable and feasible. See Chapter 4 and Appendix E of the 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 and/or Appendix E of the manual. Discussion / justification is not required.
- "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 may be provided.

Source Control Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	☑ Yes	□ No	□ N/A
SD-2 Conserve Natural Areas, Soils, and Vegetation	☑ Yes	□ No	□ N/A
SD-3 Minimize Impervious Area	☑ Yes	□ No	□ N/A
SD-4 Minimize Soil Compaction	☑ Yes	□ No	□ N/A
SD-5 Impervious Area Dispersion - Directly Connected Impervious Areas (e.g. roof downspouts connected to street) are not allowed	☑ Yes	□ No	□ N/A
SD-6 Runoff Collection	☑ Yes	□ No	□ N/A
SD-7 Landscaping with Native or Drought Tolerant Species	☑ Yes	□ No	□ N/A
SD-8 Harvesting and Using Precipitation	□ Yes	☑ No	□ N/A

Discussion / justification if SD-1 through SD-8 not implemented. Justification must be provided for ALL "No" answers shown above.

Harvest and use is not feasible for this project. See Harvest and Use Feasibility Form for calculations.

PDP STRUCTURAL BMPS

All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the BMP Design Manual). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the BMP Design Manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s).

PDP structural BMPs must be verified by the local jurisdiction 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 Section 1.12 of the BMP Design Manual). PDP structural BMPs must be maintained into perpetuity (see Section 7 of the BMP Design Manual). The local jurisdiction will confirm the maintenance annually.

Use this section to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (page 3 of this form) for each structural BMP within the project (copy the BMP summary information page as many times as needed to provide summary information for each individual structural BMP).

Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the BMP Design Manual were followed, and the results (type of BMPs selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate.

The project is proposing lined biofiltration basins that will integrate both pollutant control measures with flow control for hydromodification management. The basins have been sized to demonstrate compliance with HMP using the Environmental Protection Agency's (EPA) Storm Water Management Model (SWMM). The model was set up to demonstrate compliance assuming no infiltration, consistent with the Type D soils found onsite. A low-flow threshold of 0.1Q2 was used for hydromodification management requirements as a channel/geomorphic assessment was not performed.

To help supplement the storage provided in biofiltration basins A1 through A4, a storm water vault has been included to help meet hydromodification requirements for the site. A low flow orifice, mid flow orifice, and overflow weir have been designed to reduce flows generated in the pre-development condition as well as provide an outlet for the higher intensity, lower frequency storm events. Runoff generated by these larger storm events will bypass the system and will be routed offsite and discharged into the existing storm drain systems adjacent to the site.

As a part of the Green Streets Initiative implemented by the City of Encinitas, the project proposes the use of permeable pavers for a portion of the Sidonia Street widening. Though permeable pavers are being used as a part of the post construction BMP measures for the proposed offsite improvements, the site is not taking credit for the pollutant control and storage benefits provided by these BMP's to help meet onsite water quality requirements.

STRUCTURAL BMP SUMMARY INFORMATION

Copy this page as necessary to provide information on each individual proposed structural BMP

Structural BMP ID No: A1	DMA No: A1
Construction Plan Sheet No: C1.2	
Type of structural BMP: □ Retention by harvest and use (HU-1) □ Retention by infiltration basin (INF-1) □ Retention by bioretention (INF-2) □ Retention by permeable pavement (INF-3) □ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) □ Biofiltration with Nutrient Sensitive Media Design (BF-2) □ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □ 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) □ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) □ Detention pond or vault for hydromodification management □ Other (describe in discussion section below)	
Purpose: □ Pollutant control only □ Hydromodification control only ☑ Combined pollutant control and hydromodification control □ Pre-treatment/forebay for another structural BMP □ Other (describe in discussion section below)	
Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	
Who will be the final owner of this BMP?	HOA
Who will maintain this BMP into perpetuity?	HOA
What is the funding mechanism for maintenance?	HOA
Discussion (as needed): An HOA will be formed and will be responsible for the maintenance of storm water facilities into perpetuity, as required by the City.	

Structural BMP ID No: A2	DMA No: A2
Construction Plan Sheet No: C1.2	

Type of structural BMP:

□ Retention by harvest and use (HU-1)

□ Retention by infiltration basin (INF-1)

□ Retention by bioretention (INF-2)

□ Retention by permeable pavement (INF-3)

□ Partial retention by biofiltration with partial retention (PR-1)

☑ Biofiltration (BF-1)

□ Biofiltration with Nutrient Sensitive Media Design (BF-2)

□ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F

□ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)

□ 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)

□ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)

□ Detention pond or vault for hydromodification management

□ Other (describe in discussion section below)

Purpose:

□ Pollutant control only

□ Hydromodification control only

☑ Combined pollutant control and hydromodification control

□ Pre-treatment/forebay for another structural BMP

□ Other (describe in discussion section below)

Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	
Who will be the final owner of this BMP?	HOA
Who will maintain this BMP into perpetuity?	HOA
What is the funding mechanism for maintenance?	HOA

Discussion (as needed):

An HOA will be formed and will be responsible for the maintenance of storm water facilities into perpetuity, as required by the City.

Structural BMP ID No: A3	DMA No: A3
Construction Plan Sheet No: C1.2	
Type of structural BMP: □ Retention by harvest and use (HU-1) □ Retention by infiltration basin (INF-1) □ Retention by bioretention (INF-2) □ Retention by permeable pavement (INF-3) □ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) □ Biofiltration with Nutrient Sensitive Media Design (BF-2) □ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □ 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) □ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) □ Detention pond or vault for hydromodification management □ Other (describe in discussion section below)	
Purpose: □ Pollutant control only □ Hydromodification control only ☑ Combined pollutant control and hydromodification control □ Pre-treatment/forebay for another structural BMP □ Other (describe in discussion section below)	
Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	
Who will be the final owner of this BMP?	HOA
Who will maintain this BMP into perpetuity?	HOA
What is the funding mechanism for maintenance?	HOA
Discussion (as needed): An HOA will be formed and will be responsible for the maintenance of storm water facilities into perpetuity, as required by the City.	

Structural BMP ID No: A4	DMA No: A4
Construction Plan Sheet No: C1.2	

Type of structural BMP:

□ Retention by harvest and use (HU-1)

□ Retention by infiltration basin (INF-1)

□ Retention by bioretention (INF-2)

□ Retention by permeable pavement (INF-3)

□ Partial retention by biofiltration with partial retention (PR-1)

☑ Biofiltration (BF-1)

□ Biofiltration with Nutrient Sensitive Media Design (BF-2)

□ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F

□ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)

□ 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)

□ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)

□ Detention pond or vault for hydromodification management

□ Other (describe in discussion section below)

Purpose:

□ Pollutant control only

□ Hydromodification control only

☑ Combined pollutant control and hydromodification control

□ Pre-treatment/forebay for another structural BMP

□ Other (describe in discussion section below)

Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	
Who will be the final owner of this BMP?	HOA
Who will maintain this BMP into perpetuity?	HOA
What is the funding mechanism for maintenance?	HOA

Discussion (as needed):

An HOA will be formed and will be responsible for the maintenance of storm water facilities into perpetuity, as required by the City.

Structural BMP ID No: A5	DMA No: A5
Construction Plan Sheet No: C1.2	

Type of structural BMP:

□ Retention by harvest and use (HU-1)

□ Retention by infiltration basin (INF-1)

□ Retention by bioretention (INF-2)

□ Retention by permeable pavement (INF-3)

□ Partial retention by biofiltration with partial retention (PR-1)

☑ Biofiltration (BF-1)

□ Biofiltration with Nutrient Sensitive Media Design (BF-2)

□ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F

□ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)

□ 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)

□ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)

□ Detention pond or vault for hydromodification management

□ Other (describe in discussion section below)

Purpose:

□ Pollutant control only

□ Hydromodification control only

☑ Combined pollutant control and hydromodification control

□ Pre-treatment/forebay for another structural BMP

□ Other (describe in discussion section below)

Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	
Who will be the final owner of this BMP?	HOA
Who will maintain this BMP into perpetuity?	HOA
What is the funding mechanism for maintenance?	HOA

Discussion (as needed):

An HOA will be formed and will be responsible for the maintenance of storm water facilities into perpetuity, as required by the City.

Structural BMP ID No: B1	DMA No: B1
Construction Plan Sheet No: C1.2	
Type of structural BMP: □ Retention by harvest and use (HU-1) □ Retention by infiltration basin (INF-1) □ Retention by bioretention (INF-2) □ Retention by permeable pavement (INF-3) □ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) □ Biofiltration with Nutrient Sensitive Media Design (BF-2) □ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □ 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) □ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) □ Detention pond or vault for hydromodification management □ Other (describe in discussion section below)	
Purpose: □ Pollutant control only □ Hydromodification control only ☑ Combined pollutant control and hydromodification control □ Pre-treatment/forebay for another structural BMP □ Other (describe in discussion section below)	
Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	
Who will be the final owner of this BMP?	HOA
Who will maintain this BMP into perpetuity?	HOA
What is the funding mechanism for maintenance?	HOA
Discussion (as needed): An HOA will be formed and will be responsible for the maintenance of storm water facilities into perpetuity, as required by the City.	

Structural BMP ID No: B2	DMA No: B2
Construction Plan Sheet No: C1.2	
Type of structural BMP: □ Retention by harvest and use (HU-1) □ Retention by infiltration basin (INF-1) □ Retention by bioretention (INF-2) □ Retention by permeable pavement (INF-3) □ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) □ Biofiltration with Nutrient Sensitive Media Design (BF-2) □ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □ 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) □ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) □ Detention pond or vault for hydromodification management □ Other (describe in discussion section below)	
Purpose: □ Pollutant control only □ Hydromodification control only ☑ Combined pollutant control and hydromodification control □ Pre-treatment/forebay for another structural BMP □ Other (describe in discussion section below)	
Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	
Who will be the final owner of this BMP?	HOA
Who will maintain this BMP into perpetuity?	HOA
What is the funding mechanism for maintenance?	HOA
Discussion (as needed): An HOA will be formed and will be responsible for the maintenance of storm water facilities into perpetuity, as required by the City.	

Structural BMP ID No: Permeable Pavers	DMA No: Offsite
Construction Plan Sheet No: C1.2	

Type of structural BMP:

□ Retention by harvest and use (HU-1)

□ Retention by infiltration basin (INF-1)

□ Retention by bioretention (INF-2)

☑ Retention by permeable pavement (INF-3)

□ Partial retention by biofiltration with partial retention (PR-1)

□ Biofiltration (BF-1)

□ Biofiltration with Nutrient Sensitive Media Design (BF-2)

□ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F

□ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)

□ 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)

□ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)

□ Detention pond or vault for hydromodification management

□ Other (describe in discussion section below)

Purpose:

☑ Pollutant control only

□ Hydromodification control only

□ Combined pollutant control and hydromodification control

□ Pre-treatment/forebay for another structural BMP

□ Other (describe in discussion section below)

Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	
Who will be the final owner of this BMP?	City of Encinitas
Who will maintain this BMP into perpetuity?	City of Encinitas
What is the funding mechanism for maintenance?	City of Encinitas/Public Funds

Discussion (as needed):

Permeable pavers have been proposed as a part of the Green Streets Initiative implemented by the City of Encinitas as a part of the Sidonia Street widening (offsite improvements). The permeable pavers will be publicly owned and maintained.

Structural BMP ID No: Storm Water Vault	DMA No: A4
Construction Plan Sheet No: C1.2	

Type of structural BMP:

□ Retention by harvest and use (HU-1)

□ Retention by infiltration basin (INF-1)

□ Retention by bioretention (INF-2)

□ Retention by permeable pavement (INF-3)

□ Partial retention by biofiltration with partial retention (PR-1)

□ Biofiltration (BF-1)

□ Biofiltration with Nutrient Sensitive Media Design (BF-2)

□ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F

□ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)

□ 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)

□ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)

☑ Detention pond or vault for hydromodification management

□ Other (describe in discussion section below)

Purpose:

□ Pollutant control only

☑Hydromodification control only

□ Combined pollutant control and hydromodification control

□ Pre-treatment/forebay for another structural BMP

□ Other (describe in discussion section below)

Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	
Who will be the final owner of this BMP?	HOA
Who will maintain this BMP into perpetuity?	HOA
What is the funding mechanism for maintenance?	HOA

Discussion (as needed):

An HOA will be formed and will be responsible for the maintenance of storm water facilities into perpetuity, as required by the City.

ATTACHMENT 1 - BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

Indicate which items are included behind this cover sheet:

Attachment	Contents	Checklist
Attachment 1a	DMA Exhibit (Required) See DMA Exhibit Checklist on the back of this Attachment cover sheet.	☑ Included
Attachment 1b	Tabular Summary of DMAs Showing DMA ID matching DMA Exhibit, DMA Area, and DMA Type (Required)* *Provide table in this Attachment OR on DMA Exhibit in Attachment 1a	☑ Included on DMA Exhibit in Attachment 1a □ Included as Attachment 1b, separate from DMA Exhibit
Attachment 1c	Form I-7, Harvest and Use Feasibility Screening Checklist (Required unless the entire project will use infiltration BMPs) Refer to Appendix B.3-1 of the BMP Design Manual to complete Form I-7.	☑ Included □ Not included because the entire project will use infiltration BMPs
Attachment 1d	Form I-8, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the BMP Design Manual to complete Form I-8.	☑ Included □ Not included because the entire project will use harvest and use BMPs
Attachment 1e	Pollutant Control BMP Design Worksheets / Calculations (Required) Refer to Appendices B and E of the BMP Design Manual for structural pollutant control BMP design guidelines	☑ Included

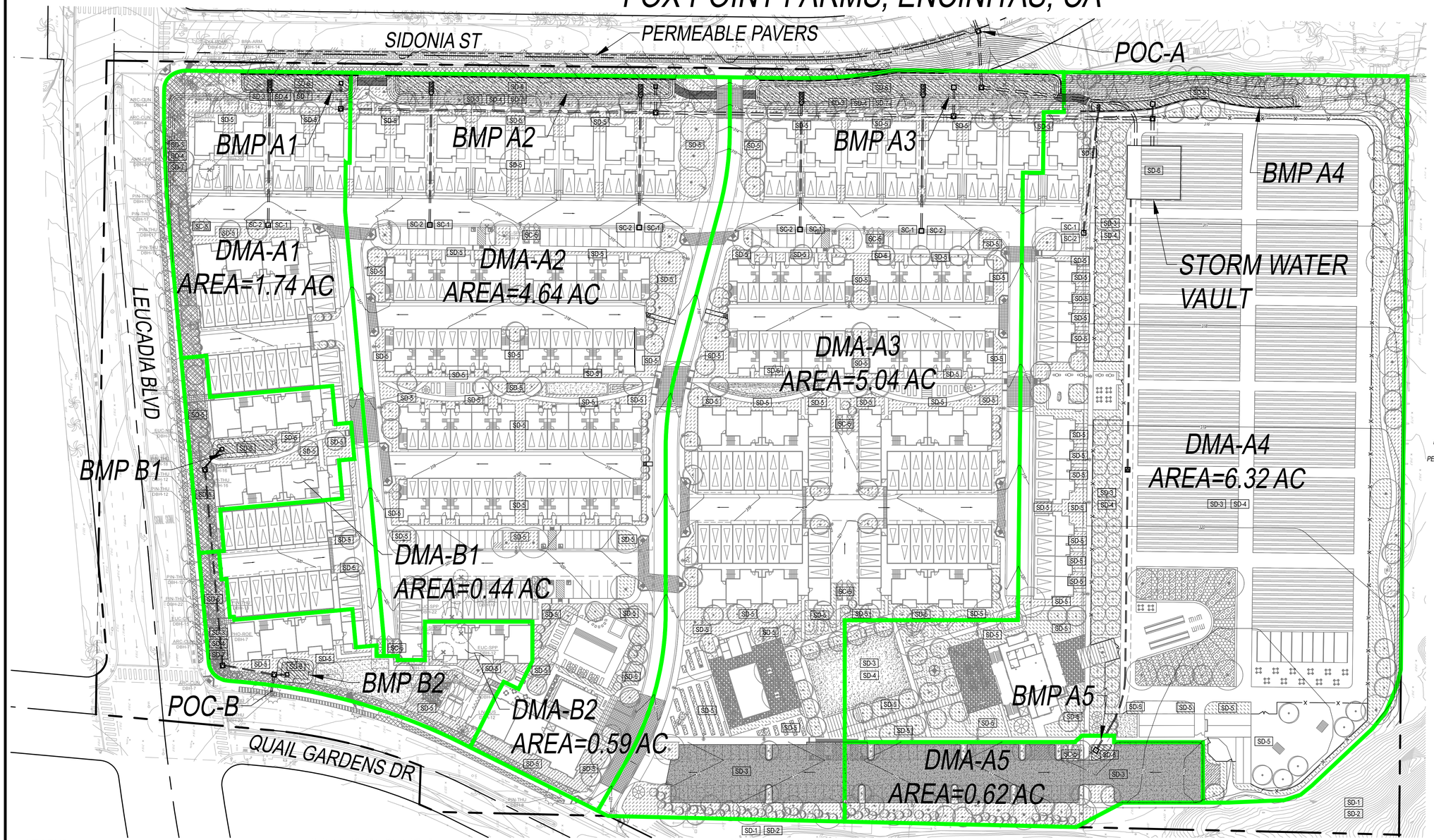
Use this checklist to ensure the required information has been included on the DMA Exhibit:

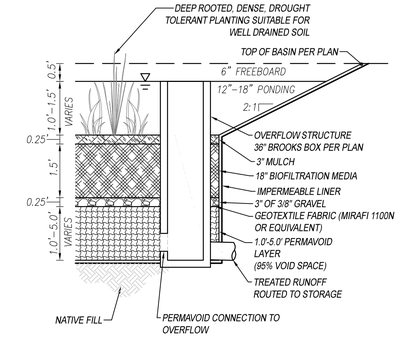
The DMA Exhibit must identify:

☑ Underlying hydrologic soil group
☑ Approximate depth to groundwater
□ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
☑ Critical coarse sediment yield areas to be protected
☑ Existing topography and impervious areas
☑ Existing and proposed site drainage network and connections to drainage offsite
□ Proposed demolition
☑ Proposed grading
☑ Proposed impervious features
☑ Proposed design features and surface treatments used to minimize imperviousness
☑ Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
□ Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Form I-3B)
☑ Structural BMPs (identify location, type of BMP, and size/detail)

DRAINAGE MANAGEMENT AREA MAP

FOX POINT FARMS, ENCINITAS, CA





TYPICAL BASIN DETAIL

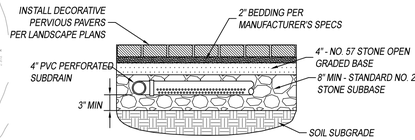
NTS

NOTE:
1. BIOFILTRATION "ENGINEERED SOIL" LAYER SHALL BE EVENLY MIXED COMPOSITION OF WASHED SAND, SANDY LOAM TOPSOIL, AND HUMIC COMPOST. THE MIX SHALL CONTAIN 65% SAND, 20% TOPSOIL, AND 15% COMPOST OR HARDWOOD MULCH IN ACCORDANCE WITH COUNTY OF SAN DIEGO LID BIOSWALE MEDIA BIO65 CUT SHEET

2. STORAGE LAYER SHALL BE A MINIMUM OF 6" BUT MAY BE DEEPENED TO INCREASE THE INFILTRATION AND STORAGE ABILITY OF THE DETAIL

BMP ID	SURFACE AREA	PONDING DEPTH	STORAGE DEPTH
A1	1,532 SF	18"	60"
A2	4,010 SF	18"	60"
A3	4,388 SF	18"	60"
A4	1,609 SF	18"	60"
A5	221 SF	12"	36"
B1	546 SF	12"	12"
B2	400 SF	12"	36"

BMP BASIN DATA TABLE



NOTES:
-ALL AGGREGATE MUST BE CLEAN/WASHED AND FREE OF FINES (SAND, SILT, ETC.)
-THE PAVERS SHALL NOT BE SEALED ONCE THE VOID FILLER HAS BEEN ADDED
-EACH COURSE SHALL BE VIBRATORY COMPACTED BEFORE PLACEMENT OF NEXT COURSE
-NO IMPERVIOUS LINER OR FILTER FABRIC TO BE USED
-SPECIAL APPROVAL REQUIRED FOR USE IN HIGHLY EXPANSIVE SOIL - SUBDRAIN REQUIRED

PERVIOUS PAVER DETAIL

NOT TO SCALE

SOURCE CONTROL

IDENTIFIER	DESCRIPTION	USED?
SC-1	PREVENTION OF ILLICIT DISCHARGES INTO THE MS4	YES
SC-2	STORM DRAIN STENCILING OR SIGNAGE	YES
SC-3	PROTECT OUTDOOR MATERIALS STORAGE AREA	N/A
SC-4	PROTECT MATERIALS STORED IN OUTDOOR WORK AREAS FROM RAINFALL, RUN-ON, RUNOFF, AND W	N/A
SC-5	PROTECT TRASH STORAGE AREAS	YES
SC-6	ADDITIONAL BMPS BASED ON POTENTIAL SOURCES OF POLLUTANTS	YES

SITE DESIGN

IDENTIFIER	DESCRIPTION	USED?
SD-1	MAINTAIN NATURAL DRAINAGE PATHWAYS AND HYDROLOGIC FEATURES	YES
SD-2	CONSERVE NATURAL AREAS, SOILS, AND VEGETATION	YES
SD-3	MINIMIZE IMPERVIOUS AREA	YES
SD-4	MINIMIZE SOIL COMPACTION	YES
SD-5	IMPERVIOUS AREA DISPERSION	YES
SD-6	RUNOFF COLLECTION	YES
SD-7	DROUGHT TOLERANT OR NATIVE LANDSCAPING	YES
SD-8	HARVEST AND USE	NO

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- ADJACENT PROPERTY LINE
- CENTER LINE OF ROAD
- DRAINAGE BOUNDARY
- DG PARKING AREA

DMA-A1: DCV CALCULATIONS

TOTAL BASIN SIZE	=	75,760 SF/1.7 AC
TOTAL DMA SIZE (Cx*Ax)	=	50,002 SF
RUNOFF FACTOR 85TH PERCENTILE RAINFALL DEPTH (d)	=	0.66 0.57 INCHES
DCV (C*d*A*3,630)	=	2,375 CU FT

DMA-A2: DCV CALCULATIONS

TOTAL BASIN SIZE	=	202,200 SF/ 4.6 AC
TOTAL DMA SIZE (Cx*Ax)	=	133,452 SF
RUNOFF FACTOR 85TH PERCENTILE RAINFALL DEPTH (d)	=	0.66 0.57 INCHES
DCV (C*d*A*3,630)	=	6,339 CU FT

DMA-A3: DCV CALCULATIONS

TOTAL BASIN SIZE	=	219,500SF/ 5.0 AC
TOTAL DMA SIZE (Cx*Ax)	=	144,870SF
RUNOFF FACTOR 85TH PERCENTILE RAINFALL DEPTH (d)	=	0.66 0.57 INCHES
DCV (C*d*A*3,630)	=	6,881 CU FT

DMA-A4: DCV CALCULATIONS

TOTAL BASIN SIZE	=	275,310 SF/ 6.3 AC
TOTAL DMA SIZE (Cx*Ax)	=	52,323 SF
RUNOFF FACTOR 85TH PERCENTILE RAINFALL DEPTH (d)	=	0.19 0.57 INCHES
DCV (C*d*A*3,630)	=	2,485 CU FT

DMA-A5: DCV CALCULATIONS

TOTAL BASIN SIZE	=	26,990 SF/0.6 AC
TOTAL DMA SIZE (Cx*Ax)	=	6,684 SF
RUNOFF FACTOR 85TH PERCENTILE RAINFALL DEPTH (d)	=	0.25 0.57 INCHES
DCV (C*d*A*3,630)	=	317 CU FT

SOIL TYPE INFORMATION

HYDROLOGIC SOIL TYPE: D

COARSE SEDIMENT YIELD

NO CRITICAL COARSE SEDIMENT YIELD AREAS TO BE PROTECTED.

GROUNDWATER INFORMATION

GROUNDWATER WAS ENCOUNTERED AT ELEVATIONS 9 TO 14 FEET BELOW EXISTING GRADE DURING TESTING

DMA-B1: DCV CALCULATIONS

TOTAL BASIN SIZE	=	19,010 SF/ 0.4 AC
TOTAL DMA SIZE (Cx*Ax)	=	10,285 SF
RUNOFF FACTOR 85TH PERCENTILE RAINFALL DEPTH (d)	=	0.54 0.57 INCHES
DCV (C*d*A*3,630)	=	489 CU FT

DMA-B2: DCV CALCULATIONS

TOTAL BASIN SIZE	=	25,810SF/ 0.6 AC
TOTAL DMA SIZE (Cx*Ax)	=	12,069 SF
RUNOFF FACTOR 85TH PERCENTILE RAINFALL DEPTH (d)	=	0.47 0.57 INCHES
DCV (C*d*A*3,630)	=	573 CU FT

0 50' 100' 150'

SCALE: 1"=50'

MAY 2020

PREPARED BY:

PASCO LARET SUITER & ASSOCIATES

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J:\ACTIVE JOBS\3084 NOLEN COMMUNITIES FOX POINT\CIVIL\REPORTS\SWQMP\ATTACHMENTS\ATTACHMENT 1-POLLUTANT CONTROL\3084-CV-DMA.DWG SAVED: 7/27/2020

ATTACHMENT 1c

Worksheet B.3-1. Harvest and Use Feasibility Screening

Harvest and Use Feasibility Screening	**Worksksheet B.3-1**

1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season?
✓Toilet and urinal flushing
✓ Landscape irrigation
Other:_____

2. If there is a demand; estimate the anticipated average wet season demand over a period of 36 hours. Guidance for planning level demand calculations for toilet/urinal flushing and landscape irrigation is provided in Section B.3.2.

Toilet/Urinal Flushing
(9.3 gal/person-day) x (0.13368 cuft/gal) x (1.5 days) = 1.86 cuft/person-36hr
Assume (750 people) x (1.86 cuft/person-36 hr) = 1395 cuft/36hr

Landscape Irrigation
(9.64 ac irrigated) x (390 gal/ac-36hr) x (0.13368 cuft/gal) = 503 cuft/36hr

Total = 1395 cuft + 503 cuft = 1898 cuft

3. Calculate the DCV using worksheet B-2.1.

DCV = 19459 cuft

3a. Is the 36-hour demand greater than or equal to the DCV?	3b. Is the 36-hour demand greater than 0.25DCV but less than the full DCV?	3c. Is the 36-hour demand less than 0.25DCV?
Yes / ✓ No	Yes / ✓ No	✓ Yes
Harvest and use appears to be feasible. Conduct more detailed evaluation and sizing calculations to confirm that DCV can be used at an adequate rate to meet drawdown criteria.	Harvest and use may be feasible. Conduct more detailed evaluation and sizing calculations to determine feasibility. Harvest and use may only be able to be used for a portion of the site, or (optionally) the storage may need to be upsized to meet long term capture targets while draining in longer than 36 hours.	✓ Harvest and use is considered to be infeasible.

ATTACHMENT 1d

Categorization of Infiltration Feasibility Condition	Form I-8

Part 1 - Full Infiltration Feasibility Screening Criteria

Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		X

Provide basis:

No. A percolation testing program and infiltration analyses program was performed at the site. Results are 0.0 inches per hour. See GeoTek, Inc, report, "Preliminary Geotechnical Evaluation, Fox POint Farms, 1150 Quail Gardens Drive, Encinitas, California, Project No. 3611-SD, dated December 13, 2019.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		X

Provide basis:

Not Applicable. See our response to question number 1.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

Form I-8 Page 2 of 4			
Criteria	Screening Question	**Yes**	**No**
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, stormwater pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		X
Provide basis: Not Applicable. See our response to question number 1. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		X
Provide basis: Not Applicable. See our response to question number 1. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result *	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		No

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

Form I-8 Page 3 of 4

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		X

Provide basis:

No. A percolation testing program and infiltration analyses program was performed at the site. Results are 0.0 inches per hour. See GeoTek, Inc, report, "Preliminary Geotechnical Evaluation, Fox POint Farms, 1150 Quail Gardens Drive, Encinitas, California, Project No. 3611-SD, dated December 13, 2019.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		X

Provide basis:

Based on our 2019 report, site soils did not percolate with any appreciable quantity. However, if infiltration was planned, the site exhibits shallow, dense, bedrock, that may potentially casue groundwater mounding.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

Form I-8 Page 4 of 4			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, stormwater pollutants or other factors)?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		X
Provide basis: The site is and was utilized as a botanical nursery. Application of pesticides was utilized. Althhough soil sampling resulted in levels below regulatry action levels or areproposed to be removed from the site, planned water infiltration is not recommended. "Additional Soil Sampling, Fox Point Farms Project, 1150Quail Gardens Drive, Encinitas, San Diego County, California, 92082, ProjectNumber 3611-SD, dated January 28, 2020 Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	**Can infiltration be allowed without violating downstream water rights**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		X
Provide basis: Provided the soils on site are able to receive infiltration of waters, and a cursory review of the downgradient properties, it is our opinion that downstream water rights will not be violated. However, a legal evaluation should be performed by an appropriate representation. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 1-4 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**		No Infiltration

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

ATTACHMENT 1e

DCV Calculations

3084 Fox Point
2/27/2020

DMA A1

Total Area (sf)	75,760
Total Area (ac)	1.7
Impervious Area (sf)	53,032
Pervious Area (sf)	22,728
DMA Area	50,002
Runoff Factor (C)	0.66
85th Perc (d)	0.57
DCV (cf)	2375

DMA B1

Total Area (sf)	19,010
Total Area (ac)	0.4
Impervious Area (sf)	10,480
Pervious Area (sf)	8,530
DMA Area	10,285
Runoff Factor (C)	0.54
85th Perc (d)	0.57
DCV (cf)	489

DMA A2

Total Area (sf)	202,200
Total Area (ac)	4.6
Impervious Area (sf)	141,540
Pervious Area (sf)	60,660
DMA Area	133,452
Runoff Factor (C)	0.66
85th Perc (d)	0.57
DCV (cf)	6,339

DMA B2

Total Area (sf)	25,810
Total Area (ac)	0.6
Impervious Area (sf)	11,860
Pervious Area (sf)	13,950
DMA Area	12,069
Runoff Factor (C)	0.47
85th Perc (d)	0.57
DCV (cf)	573

DMA A3

Total Area (sf)	219,500
Total Area (ac)	5.0
Impervious Area (sf)	153,650
Pervious Area (sf)	65,850
DMA Area	144,870
Runoff Factor (C)	0.66
85th Perc (d)	0.57
DCV (cf)	6,881

DMA A4

Total Area (sf)	275,310
Total Area (ac)	6.3
Impervious Area (sf)	30,990
Pervious Area (sf)	244,320
DMA Area	52,323
Runoff Factor (C)	0.19
85th Perc (d)	0.57
DCV (cf)	2,485

DMA A5

Total Area (sf)	26,990
Total Area (ac)	0.6
DG Area (sf)	19,924
Pervious Area (sf)	7,066
DMA Area	6,684
Runoff Factor (C)	0.25
85th Perc (d)	0.57
DCV (cf)	317

DMA-A1

Worksheet B.5-1: Simple Sizing Method for Biofiltration BMPs			
1	Remaining DCV After implementing retention BMPs	2375.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	546.0	sq-ft
8	Media retained pore storage	0.1	in/in
9	Volume retained pore storage	81.90	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	2293.1	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	18.0	inches
12	Media Thickness [18 in Min], also add mulch layer thicknes to this line	18	inches
13	Aggregate Storage above underdrain inver (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface area	60	inches
14	Freely drained pore storage	0.2	in/in
15	Media filtration rate to be used for sizing (5 in/hr. with no outlet control; if the filtration rate is controlled by the outlet, use the outlet controlled rate which will be less than 5 in/hr.)	5.000	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	45.60	inches
19	Total Depth Treated [Line 17 + Line 18]	75.60	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	3440	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	546.0	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	1720	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	453	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	75760	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.66	
26	BMP Footprint Sizing Factor (Default 0.03 or an alternative minimum footprint sizing factor from Worksheet B.5-2, Line 11)	0.03	
27	Minimum BMP Footprint [Line 24 x Line 25 x Line 26]	1500	sq-ft
28	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	1500	sq-ft

DMA-A2

Worksheet B.5-1: Simple Sizing Method for Biofiltration BMPs			
1	Remaining DCV After implementing retention BMPs	6339.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	1457.0	sq-ft
8	Media retained pore storage	0.1	in/in
9	Volume retained pore storage	218.55	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	6120.5	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	18.0	inches
12	Media Thickness [18 in Min], also add mulch layer thicknes to this line	18	inches
13	Aggregate Storage above underdrain inver (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface	60	inches
14	Freely drained pore storage	0.2	in/in
15	Media filtration rate to be used for sizing (5 in/hr. with no outlet control; if the filtration rate is controlled by the outlet, use the outlet controlled rate which will be less than 5 in/hr.)	5.000	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	45.60	inches
19	Total Depth Treated [Line 17 + Line 18]	75.60	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	9181	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	1457.3	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	4590	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	1208	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	202200	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.66	
26	BMP Footprint Sizing Factor (Default 0.03 or an alternative minimum footprint sizing factor from Worksheet B.5-2, Line 11)	0.03	
27	Minimum BMP Footprint [Line 24 x Line 25 x Line 26]	4004	sq-ft
28	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	4004	sq-ft

DMA-A3

Worksheet B.5-1: Simple Sizing Method for Biofiltration BMPs			
1	Remaining DCV After implementing retention BMPs	6881.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	1581.0	sq-ft
8	Media retained pore storage	0.1	in/in
9	Volume retained pore storage	237.15	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	6643.9	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	18.0	inches
12	Media Thickness [18 in Min], also add mulch layer thicknes to this line	18	inches
13	Aggregate Storage above underdrain inver (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface	60	inches
14	Freely drained pore storage	0.2	in/in
15	Media filtration rate to be used for sizing (5 in/hr. with no outlet control; if the filtration rate is controlled by the outlet, use the outlet controlled rate which will be less than 5 in/hr.)	5.000	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	45.60	inches
19	Total Depth Treated [Line 17 + Line 18]	75.60	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	9966	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	1581.9	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	4983	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	1311	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	219500	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.66	
26	BMP Footprint Sizing Factor (Default 0.03 or an alternative minimum footprint sizing factor from Worksheet B.5-2, Line 11)	0.03	
27	Minimum BMP Footprint [Line 24 x Line 25 x Line 26]	4346	sq-ft
28	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	4346	sq-ft

DMA-A4

Worksheet B.5-1: Simple Sizing Method for Biofiltration BMPs			
1	Remaining DCV After implementing retention BMPs	2485.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	760.0	sq-ft
8	Media retained pore storage	0.1	in/in
9	Volume retained pore storage	114.00	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	2371.0	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	18.0	inches
12	Media Thickness [18 in Min], also add mulch layer thicknes to this line	18	inches
13	Aggregate Storage above underdrain inver (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface	60	inches
14	Freely drained pore storage	0.2	in/in
15	Media filtration rate to be used for sizing (5 in/hr. with no outlet control; if the filtration rate is controlled by the outlet, use the outlet controlled rate which will be less than 5 in/hr.)	5.000	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	45.60	inches
19	Total Depth Treated [Line 17 + Line 18]	75.60	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	3557	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	564.5	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	1778	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	468	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	275310	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.19	
26	BMP Footprint Sizing Factor (Default 0.03 or an alternative minimum footprint sizing factor from Worksheet B.5-2, Line 11)	0.03	
27	Minimum BMP Footprint [Line 24 x Line 25 x Line 26]	1569	sq-ft
28	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	1569	sq-ft

DMA-A5

Worksheet B.5-1: Simple Sizing Method for Biofiltration BMPs			
1	Remaining DCV After implementing retention BMPs	317.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	91.0	sq-ft
8	Media retained pore storage	0.1	in/in
9	Volume retained pore storage	13.65	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	303.4	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	12.0	inches
12	Media Thickness [18 in Min], also add mulch layer thicknes to this line	18	inches
13	Aggregate Storage above underdrain inver (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface	36	inches
14	Freely drained pore storage	0.2	in/in
15	Media filtration rate to be used for sizing (5 in/hr. with no outlet control; if the filtration rate is controlled by the outlet, use the outlet controlled rate which will be less than 5 in/hr.)	3.004	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	18	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	30.00	inches
19	Total Depth Treated [Line 17 + Line 18]	48.02	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	455	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	113.7	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	228	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	91	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	26990	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.25	
26	BMP Footprint Sizing Factor (Default 0.03 or an alternative minimum footprint sizing factor from Worksheet B.5-2, Line 11)	0.03	
27	Minimum BMP Footprint [Line 24 x Line 25 x Line 26]	202	sq-ft
28	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	202	sq-ft

DMA-B1

Worksheet B.5-1: Simple Sizing Method for Biofiltration BMPs			
1	Remaining DCV After implementing retention BMPs	489.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	304.0	sq-ft
8	Media retained pore storage	0.1	in/in
9	Volume retained pore storage	45.60	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	443.4	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	12.0	inches
12	Media Thickness [18 in Min], also add mulch layer thicknes to this line	18	inches
13	Aggregate Storage above underdrain inver (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface	12	inches
14	Freely drained pore storage	0.2	in/in
15	Media filtration rate to be used for sizing (5 in/hr. with no outlet control; if the filtration rate is controlled by the outlet, use the outlet controlled rate which will be less than 5 in/hr.)	0.969	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	6	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	20.40	inches
19	Total Depth Treated [Line 17 + Line 18]	26.21	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	665	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	304.5	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	333	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	196	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	19010	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.54	
26	BMP Footprint Sizing Factor (Default 0.03 or an alternative minimum footprint sizing factor from Worksheet B.5-2, Line 11)	0.03	
27	Minimum BMP Footprint [Line 24 x Line 25 x Line 26]	308	sq-ft
28	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	308	sq-ft

DMA-B2

Worksheet B.5-1: Simple Sizing Method for Biofiltration BMPs			
1	Remaining DCV After implementing retention BMPs	573.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	400.0	sq-ft
8	Media retained pore storage	0.1	in/in
9	Volume retained pore storage	60.00	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	513.0	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	12.0	inches
12	Media Thickness [18 in Min], also add mulch layer thicknes to this line	18	inches
13	Aggregate Storage above underdrain inver (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface	36	inches
14	Freely drained pore storage	0.2	in/in
15	Media filtration rate to be used for sizing (5 in/hr. with no outlet control; if the filtration rate is controlled by the outlet, use the outlet controlled rate which will be less than 5 in/hr.)	1.660	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	10	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	30.00	inches
19	Total Depth Treated [Line 17 + Line 18]	39.96	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	770	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	231.1	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	385	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	154	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	25810	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.47	
26	BMP Footprint Sizing Factor (Default 0.03 or an alternative minimum footprint sizing factor from Worksheet B.5-2, Line 11)	0.03	
27	Minimum BMP Footprint [Line 24 x Line 25 x Line 26]	364	sq-ft
28	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	364	sq-ft

ATTACHMENT 2 - BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

This is the cover sheet for Attachment 2.

□ Mark this box if this attachment is not included because the project is exempt from PDP hydromodification management requirements.

Indicate which items are included behind this cover sheet:

Attachment	Contents	Checklist
Attachment 2a	Hydromodification Management Exhibit (Required)	☑Included See Hydromodification Management Exhibit Checklist on the back of this Attachment cover sheet.
Attachment 2b	Management of Critical Coarse Sediment Yield Areas (WMAA Exhibit is required, additional analyses are optional) See Section 6.2 of the BMP Design Manual.	☑ Exhibit showing project drainage boundaries marked on WMAA Critical Coarse Sediment Yield Area Map (Required) Optional analyses for Critical Coarse Sediment Yield Area Determination □ 6.2.1 Verification of Geomorphic Landscape Units Onsite □ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment □ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite
Attachment 2c	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the BMP Design Manual.	☑ Not performed □ Included □ Submitted as separate stand-alone document
Attachment 2d	Flow Control Facility Design, including Structural BMP Drawdown Calculations and Overflow Design Summary (Required) See Chapter 6 and Appendix G of the BMP Design Manual	☑ Included □ Submitted as separate stand-alone document
Attachment 2e	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

Use this checklist to ensure the required information has been included on the Hydromodification Management Exhibit:

The Hydromodification Management Exhibit must identify:

☑ Underlying hydrologic soil group

☑ Approximate depth to groundwater

□ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)

☑ Critical coarse sediment yield areas to be protected

☑ Existing topography

☑ Existing and proposed site drainage network and connections to drainage offsite

☑ Proposed grading

☑ Proposed impervious features

☑ Proposed design features and surface treatments used to minimize imperviousness

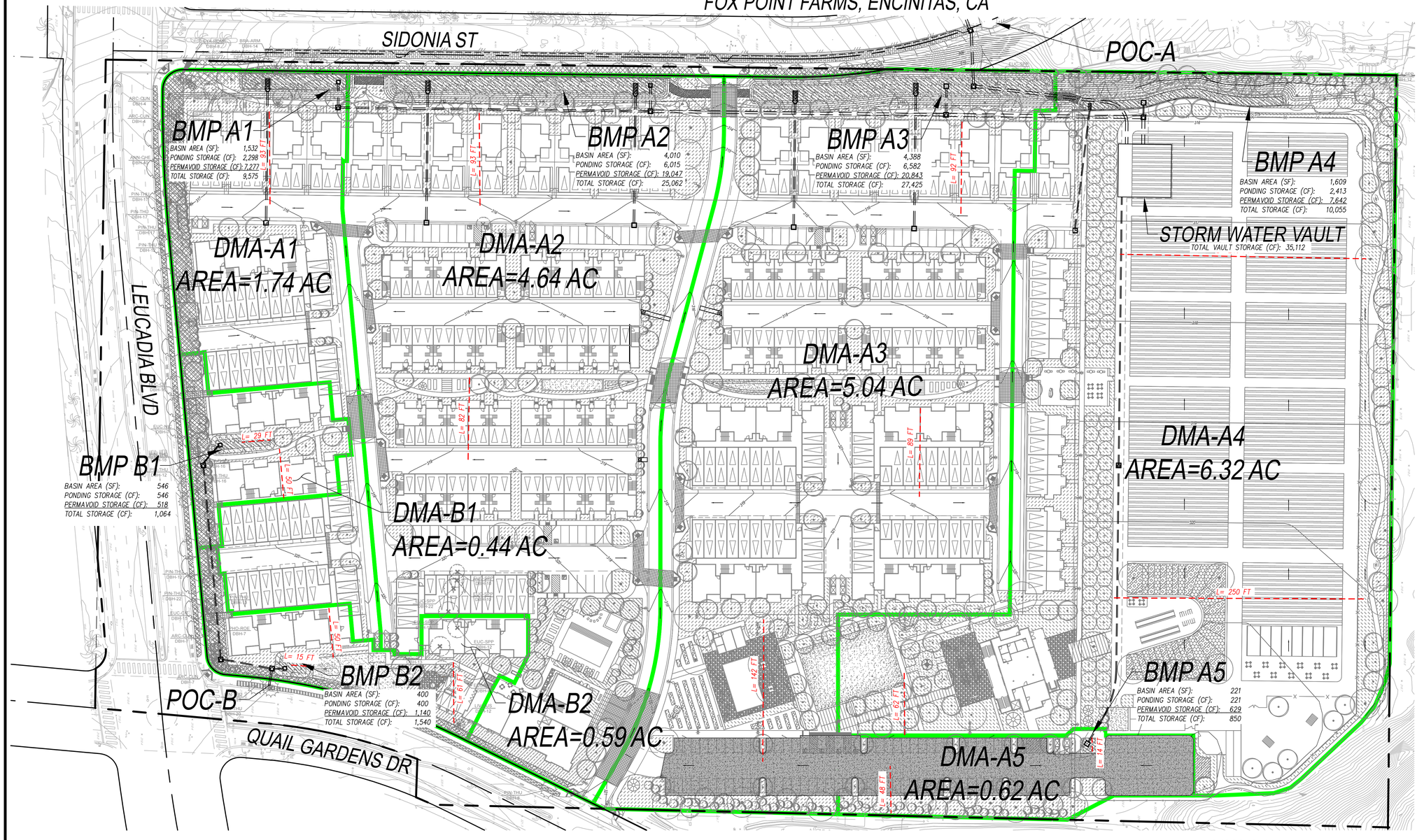
☑ Point(s) of Compliance (POC) for Hydromodification Management

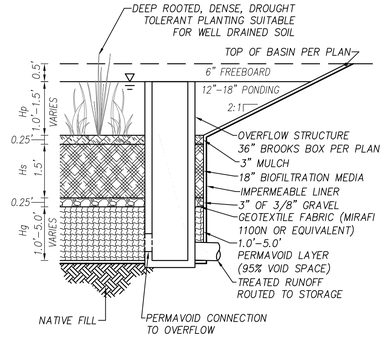
☑ Existing and proposed drainage boundary and drainage area to each POC (when necessary, create separate exhibits for pre-development and post-project conditions)

☑ Structural BMPs for hydromodification management (identify location, type of BMP, and size/detail)

HYDROMODIFICATION MANAGEMENT EXHIBIT

FOX POINT FARMS, ENCINITAS, CA





TYPICAL BASIN DETAIL

NTS

NOTE:
1. BIOFILTRATION "ENGINEERED SOIL" LAYER SHALL BE EVENLY MIXED COMPOSITION OF WASHED SAND, SANDY LOAM TOPSOIL, AND HUMIC COMPOST. THE MIX SHALL CONTAIN 65% SAND, 20% TOPSOIL, AND 15% COMPOST OR HARDWOOD MULCH IN ACCORDANCE WITH COUNTY OF SAN DIEGO LID BIOSWALE MEDIA BIO65 CUT SHEET

2. STORAGE LAYER SHALL BE A MINIMUM OF 6" BUT MAY BE DEEPENED TO INCREASE THE INFILTRATION AND STORAGE ABILITY OF THE DETAIL

DRILLED ORIFICE PLATE DETAIL (TYP.)

NOT TO SCALE

BMP ID	SURFACE AREA	PONDING DEPTH	STORAGE DEPTH
A1	1,532 SF	18"	60"
A2	4,010 SF	18"	60"
A3	4,388 SF	18"	60"
A4	1,609 SF	18"	60"
A5	221 SF	12"	36"
B1	546 SF	12"	12"
B2	400 SF	12"	36"

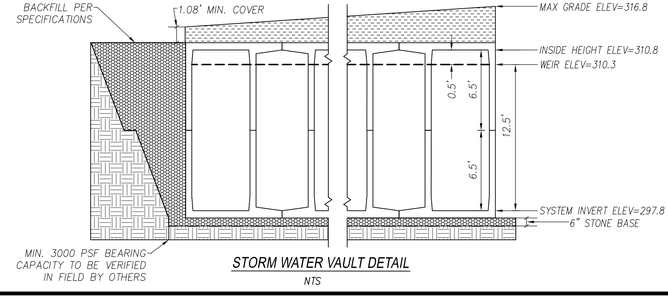
BMP BASIN DATA TABLE

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- ADJACENT PROPERTY LINE
- CENTER LINE OF ROAD
- DRAINAGE BOUNDARY
- AVERAGE OVERLAND FLOW LENGTH
- DG PARKING AREA

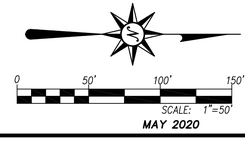
BMP #	H_P (FT)	H_S (FT)	H_G (FT)	HMP ORIFICE (IN)	A_{BOT} (FT^2)	A_{TOP} (FT^2)
A1	1.5	1.5	5.0	4.0	1,532	1,532
A2	1.5	1.5	5.0	4.0	4,010	4,010
A3	1.5	1.5	5.0	4.0	4,388	4,388
A4	1.5	1.5	5.0	4.0	1,609	1,609
A5	1.0	1.5	3.0	0.5	221	221
B1	1.0	1.5	1.0	0.5	546	546
B2	1.0	1.5	3.0	0.5	400	400
VAULT	N/A	N/A	12.5	2.7	2809	2809

BMP SIZE & ORIFICE DIAMETER SUMMARY



STORM WATER VAULT DETAIL

NTS



MAY 2020

PREPARED BY:

PASCO LARET SUITER & ASSOCIATES

CIVIL ENGINEERING + LAND PLANNING + LAND SURVEYING
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J:\ACTIVE JOBS\3084 NOLEN COMMUNITIES FOX POINT\CIVIL\REPORTS\SWQMP\ATTACHMENTS\ATTACHMENT 2-HMP CONTROL MEASURES\3084-CV-HMP-POST.DWG

ATTACHMENT 2b

City of Encinitas Web Map - PCCSY



December 13, 2019

N

1 inch = 993 feet

0 540 1,080

Feet

Every reasonable effort has been made to assure the accuracy of the data provided; nevertheless, some information may not be accurate. The City of Encinitas assumes no liability or responsibility arising from the use of or reliance upon this information.

ATTACHMENT 2d

```
[TITLE]
;;Project Title/Notes
3084 Fox Point Farms
Pre-Project Condition

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           08/28/1951
START_TIME           05:00:00
REPORT_START_DATE    08/28/1951
REPORT_START_TIME    05:00:00
END_DATE             05/23/2008
END_TIME             23:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00
RULE_STEP            00:00:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          .06    .08    0.11   0.15   0.17   0.19   0.19   0.18   0.15   0.11   0.08   0.06
DRY_ONLY         YES

[RAINGAGES]
;;Name           Format    Interval SCF      Source
```

```
;;-------------- --------- ------ ------ ----------
OCEANSIDE        INTENSITY 1:00     1.0      TIMESERIES OCEANSIDE

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA-A            OCEANSIDE        POC-A            13.88    0        1344     1.5      0
DMA-B            OCEANSIDE        POC-B            3.74     0        556      1        0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA-A            0.012      0.06       0.05       0.1        25         OUTLET
DMA-B            0.012      0.06       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    Ksat       IMD
;;-------------- ---------- ---------- ----------
DMA-A            9          0.025      0.33
DMA-B            9          0.025      0.33

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
POC-A            0          FREE                        NO
POC-B            0          FREE                        NO

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
OCEANSIDE        FILE "J:\Active Jobs\3084 Nolen Communities Fox Point\CIVIL\REPORTS\SWQMP\SWMM\Rainfall_data\oceanside.dat"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC-A            -865.835           2886.115
POC-B            2223.089           3026.521

[VERTICES]
```

```
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA-A            -694.228           6770.671
DMA-B            2223.089           6817.473

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
OCEANSIDE        1021.841           7815.913
```

```
[TITLE]
;;Project Title/Notes
3084 Fox Point Farms
Post-Project Condition

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           08/28/1951
START_TIME           05:00:00
REPORT_START_DATE    08/28/1951
REPORT_START_TIME    05:00:00
END_DATE             05/23/2008
END_TIME             23:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00
RULE_STEP            00:00:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          .06    .08    0.11   0.15   0.17   0.19   0.19   0.18   0.15   0.11   0.08   0.06
DRY_ONLY         YES

[RAINGAGES]
;;Name           Format    Interval SCF      Source
```

```
;;-------------- --------- ------ ------ ----------
OCEANSIDE        INTENSITY 1:00     1.0      TIMESERIES OCEANSIDE

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA-A1           OCEANSIDE        BMP-A1           1.7      71.6     805      1        0
DMA-B1           OCEANSIDE        BMP-B1           0.39     62.1     338      1        0
DMA-A2           OCEANSIDE        BMP-A2           4.6      70.6     2303     1        0
DMA-A3           OCEANSIDE        BMP-A3           5        70.5     2036     1        0
DMA-B2           OCEANSIDE        BMP-B2           0.59     46.1     460      1        0
BMP-B1           OCEANSIDE        POC-B            0.01253  0        20       0        0
BMP-B2           OCEANSIDE        POC-B            0.00918  0        27       0        0
DMA-A4           OCEANSIDE        BMP-A4           6.3      11.3     1475     1        0
DMA-A5           OCEANSIDE        BMP-A5           0.59     0        540      1        0
BMP-A5           OCEANSIDE        POC-A            0.00507  0        15       0        0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA-A1           0.012      0.06       0.05       0.1        25         OUTLET
DMA-B1           0.012      0.06       0.05       0.1        25         OUTLET
DMA-A2           0.012      0.06       0.05       0.1        25         OUTLET
DMA-A3           0.012      0.06       0.05       0.1        25         OUTLET
DMA-B2           0.012      0.06       0.05       0.1        25         OUTLET
BMP-B1           0.012      0.06       0.05       0.1        25         OUTLET
BMP-B2           0.012      0.06       0.05       0.1        25         OUTLET
DMA-A4           0.012      0.06       0.05       0.1        25         OUTLET
DMA-A5           0.012      0.03       0.05       0.1        25         OUTLET
BMP-A5           0.012      0.06       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    Ksat       IMD
;;-------------- ---------- ---------- ----------
DMA-A1           9          0.025      0.33
DMA-B1           9          0.025      0.33
DMA-A2           9          0.025      0.33
DMA-A3           9          0.025      0.33
DMA-B2           9          0.025      0.33
BMP-B1           9          0.025      0.33
BMP-B2           9          0.025      0.33
DMA-A4           9          0.025      0.33
DMA-A5           9          0.025      0.33
BMP-A5           9          0.025      0.33

[LID_CONTROLS]
;;Name           Type/Layer Parameters
;;-------------- ---------- ----------
BMP-A5           BC
BMP-A5           SURFACE    12         0          0          0          5
BMP-A5           SOIL       18         0.4        0.2        0.1        5          5          1.5
```

```
BMP-A5          STORAGE    36         0.99       0          0
BMP-A5          DRAIN      0.3705     0.5        0          6          0          0

BMP-B1          BC
BMP-B1          SURFACE    12         0          0          0          5
BMP-B1          SOIL       18         0.4        0.2        0.1        5          5          1.5
BMP-B1          STORAGE    12         0.99       0          0
BMP-B1          DRAIN      0.1500     0.5        0          6          0          0

BMP-B2          BC
BMP-B2          SURFACE    12         0          0          0          5
BMP-B2          SOIL       18         0.4        0.2        0.1        5          5          1.5
BMP-B2          STORAGE    36         0.99       0          0
BMP-B2          DRAIN      0.2047     0.5        0          6          0          0

[LID_USAGE]
;;Subcatchment   LID Process      Number  Area       Width      InitSat    FromImp    ToPerv     RptFile                    DrainTo
FromPerv
;;-------------- ---------------- ------- ---------- ---------- ---------- ---------- ---------- ------------------------- ------------
---- ----------
BMP-B1          BMP-B1           1       545.81     0          0          100        0          *                          *
0
BMP-B2          BMP-B2           1       399.88     0          0          100        0          *                          *
0
BMP-A5          BMP-A5           1       220.85     0          0          100        0          *                          *
0

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
POC-A           0          FREE                        NO
POC-B           0          FREE                        NO

[STORAGE]
;;Name           Elev.    MaxDepth   InitDepth  Shape      Curve Name/Params            N/A      Fevap    Psi      Ksat     IMD
;;-------------- -------- ---------- ---------- ---------- ---------------------------- -------- --------          -------- --------
BMP-A1          0        8.52       0          TABULAR    BMP-A1                       0        0
BMP-A2          0        8.52       0          TABULAR    BMP-A2                       0        0
BMP-A3          0        8.52       0          TABULAR    BMP-A3                       0        0
BMP-A4          0        8.52       0          TABULAR    BMP-A4                       0        0
VAULT           0        13         0          TABULAR    VAULT                        0        0

[OUTLETS]
;;Name           From Node        To Node          Offset     Type            QTable/Qcoeff    Qexpon     Gated
;;-------------- ---------------- ---------------- ---------- --------------- ---------------- ---------- --------
OUTLET-A2       BMP-A2           VAULT            0          TABULAR/DEPTH   BMPOUTLET                   NO
OUTLET-A3       BMP-A3           VAULT            0          TABULAR/DEPTH   BMPOUTLET                   NO
OUTLET-A4       BMP-A4           VAULT            0          TABULAR/DEPTH   BMPOUTLET                   NO
OUTLETVAULT     VAULT            POC-A            0          TABULAR/DEPTH   VAULTOUTLET                 NO
OUTLET-A1       BMP-A1           VAULT            0          TABULAR/DEPTH   BMPOUTLET                   NO
```

```
[CURVES]
;;Name           Type       X-Value    Y-Value
;;-------------- ---------- ---------- ----------
BMPOUTLET        Rating     0          0
BMPOUTLET                   0.02       0
BMPOUTLET                   0.04       0
BMPOUTLET                   0.06       0.01
BMPOUTLET                   0.08       0.02
BMPOUTLET                   0.1        0.02
BMPOUTLET                   0.12       0.03
BMPOUTLET                   0.14       0.04
BMPOUTLET                   0.16       0.06
BMPOUTLET                   0.18       0.07
BMPOUTLET                   0.2        0.08
BMPOUTLET                   0.22       0.1
BMPOUTLET                   0.24       0.11
BMPOUTLET                   0.26       0.13
BMPOUTLET                   0.28       0.14
BMPOUTLET                   0.3        0.15
BMPOUTLET                   0.32       0.17
BMPOUTLET                   0.34       0.17
BMPOUTLET                   0.36       0.18
BMPOUTLET                   0.38       0.19
BMPOUTLET                   0.4        0.2
BMPOUTLET                   0.42       0.21
BMPOUTLET                   0.44       0.22
BMPOUTLET                   0.46       0.23
BMPOUTLET                   0.48       0.24
BMPOUTLET                   0.5        0.24
BMPOUTLET                   0.52       0.25
BMPOUTLET                   0.54       0.26
BMPOUTLET                   0.56       0.26
BMPOUTLET                   0.58       0.27
BMPOUTLET                   0.6        0.28
BMPOUTLET                   0.62       0.28
BMPOUTLET                   0.64       0.29
BMPOUTLET                   0.66       0.3
BMPOUTLET                   0.68       0.3
BMPOUTLET                   0.7        0.31
BMPOUTLET                   0.72       0.31
BMPOUTLET                   0.74       0.32
BMPOUTLET                   0.76       0.32
BMPOUTLET                   0.78       0.33
BMPOUTLET                   0.8        0.33
BMPOUTLET                   0.82       0.34
BMPOUTLET                   0.84       0.34
BMPOUTLET                   0.86       0.35
BMPOUTLET                   0.88       0.35
BMPOUTLET                   0.9        0.36
BMPOUTLET                   0.92       0.36
BMPOUTLET                   0.94       0.37
```

BMPOUTLET	0.96	0.37
BMPOUTLET	0.98	0.38
BMPOUTLET	1	0.38
BMPOUTLET	1.02	0.39
BMPOUTLET	1.04	0.39
BMPOUTLET	1.06	0.4
BMPOUTLET	1.08	0.4
BMPOUTLET	1.1	0.41
BMPOUTLET	1.12	0.41
BMPOUTLET	1.14	0.41
BMPOUTLET	1.16	0.42
BMPOUTLET	1.18	0.42
BMPOUTLET	1.2	0.43
BMPOUTLET	1.22	0.43
BMPOUTLET	1.24	0.44
BMPOUTLET	1.26	0.44
BMPOUTLET	1.28	0.44
BMPOUTLET	1.3	0.45
BMPOUTLET	1.32	0.45
BMPOUTLET	1.34	0.46
BMPOUTLET	1.36	0.46
BMPOUTLET	1.38	0.46
BMPOUTLET	1.4	0.47
BMPOUTLET	1.42	0.47
BMPOUTLET	1.44	0.47
BMPOUTLET	1.46	0.48
BMPOUTLET	1.48	0.48
BMPOUTLET	1.5	0.49
BMPOUTLET	1.52	0.49
BMPOUTLET	1.54	0.49
BMPOUTLET	1.56	0.5
BMPOUTLET	1.58	0.5
BMPOUTLET	1.6	0.5
BMPOUTLET	1.62	0.51
BMPOUTLET	1.64	0.51
BMPOUTLET	1.66	0.51
BMPOUTLET	1.68	0.52
BMPOUTLET	1.7	0.52
BMPOUTLET	1.72	0.52
BMPOUTLET	1.74	0.53
BMPOUTLET	1.76	0.53
BMPOUTLET	1.78	0.53
BMPOUTLET	1.8	0.54
BMPOUTLET	1.82	0.54
BMPOUTLET	1.84	0.54
BMPOUTLET	1.86	0.55
BMPOUTLET	1.88	0.55
BMPOUTLET	1.9	0.55
BMPOUTLET	1.92	0.56
BMPOUTLET	1.94	0.56
BMPOUTLET	1.96	0.56

BMPOUTLET	1.98	0.57
BMPOUTLET	2	0.57
BMPOUTLET	2.02	0.57
BMPOUTLET	2.04	0.58
BMPOUTLET	2.06	0.58
BMPOUTLET	2.08	0.58
BMPOUTLET	2.1	0.58
BMPOUTLET	2.12	0.59
BMPOUTLET	2.14	0.59
BMPOUTLET	2.16	0.59
BMPOUTLET	2.18	0.6
BMPOUTLET	2.2	0.6
BMPOUTLET	2.22	0.6
BMPOUTLET	2.24	0.61
BMPOUTLET	2.26	0.61
BMPOUTLET	2.28	0.61
BMPOUTLET	2.3	0.61
BMPOUTLET	2.32	0.62
BMPOUTLET	2.34	0.62
BMPOUTLET	2.36	0.62
BMPOUTLET	2.38	0.63
BMPOUTLET	2.4	0.63
BMPOUTLET	2.42	0.63
BMPOUTLET	2.44	0.63
BMPOUTLET	2.46	0.64
BMPOUTLET	2.48	0.64
BMPOUTLET	2.5	0.64
BMPOUTLET	2.52	0.64
BMPOUTLET	2.54	0.65
BMPOUTLET	2.56	0.65
BMPOUTLET	2.58	0.65
BMPOUTLET	2.6	0.66
BMPOUTLET	2.62	0.66
BMPOUTLET	2.64	0.66
BMPOUTLET	2.66	0.66
BMPOUTLET	2.68	0.67
BMPOUTLET	2.7	0.67
BMPOUTLET	2.72	0.67
BMPOUTLET	2.74	0.67
BMPOUTLET	2.76	0.68
BMPOUTLET	2.78	0.68
BMPOUTLET	2.8	0.68
BMPOUTLET	2.82	0.68
BMPOUTLET	2.84	0.69
BMPOUTLET	2.86	0.69
BMPOUTLET	2.88	0.69
BMPOUTLET	2.9	0.69
BMPOUTLET	2.92	0.7
BMPOUTLET	2.94	0.7
BMPOUTLET	2.96	0.7
BMPOUTLET	2.98	0.7

BMPOUTLET	3	0.71
BMPOUTLET	3.02	0.71
BMPOUTLET	3.04	0.71
BMPOUTLET	3.06	0.71
BMPOUTLET	3.08	0.72
BMPOUTLET	3.1	0.72
BMPOUTLET	3.12	0.72
BMPOUTLET	3.14	0.72
BMPOUTLET	3.16	0.73
BMPOUTLET	3.18	0.73
BMPOUTLET	3.2	0.73
BMPOUTLET	3.22	0.73
BMPOUTLET	3.24	0.74
BMPOUTLET	3.26	0.74
BMPOUTLET	3.28	0.74
BMPOUTLET	3.3	0.74
BMPOUTLET	3.32	0.75
BMPOUTLET	3.34	0.75
BMPOUTLET	3.36	0.75
BMPOUTLET	3.38	0.75
BMPOUTLET	3.4	0.76
BMPOUTLET	3.42	0.76
BMPOUTLET	3.44	0.76
BMPOUTLET	3.46	0.76
BMPOUTLET	3.48	0.76
BMPOUTLET	3.5	0.77
BMPOUTLET	3.52	0.77
BMPOUTLET	3.54	0.77
BMPOUTLET	3.56	0.77
BMPOUTLET	3.58	0.78
BMPOUTLET	3.6	0.78
BMPOUTLET	3.62	0.78
BMPOUTLET	3.64	0.78
BMPOUTLET	3.66	0.79
BMPOUTLET	3.68	0.79
BMPOUTLET	3.7	0.79
BMPOUTLET	3.72	0.79
BMPOUTLET	3.74	0.79
BMPOUTLET	3.76	0.8
BMPOUTLET	3.78	0.8
BMPOUTLET	3.8	0.8
BMPOUTLET	3.82	0.8
BMPOUTLET	3.84	0.81
BMPOUTLET	3.86	0.81
BMPOUTLET	3.88	0.81
BMPOUTLET	3.9	0.81
BMPOUTLET	3.92	0.81
BMPOUTLET	3.94	0.82
BMPOUTLET	3.96	0.82
BMPOUTLET	3.98	0.82
BMPOUTLET	4	0.82

BMPOUTLET	4.02	0.82
BMPOUTLET	4.04	0.83
BMPOUTLET	4.06	0.83
BMPOUTLET	4.08	0.83
BMPOUTLET	4.1	0.83
BMPOUTLET	4.12	0.84
BMPOUTLET	4.14	0.84
BMPOUTLET	4.16	0.84
BMPOUTLET	4.18	0.84
BMPOUTLET	4.2	0.84
BMPOUTLET	4.22	0.85
BMPOUTLET	4.24	0.85
BMPOUTLET	4.26	0.85
BMPOUTLET	4.28	0.85
BMPOUTLET	4.3	0.85
BMPOUTLET	4.32	0.86
BMPOUTLET	4.34	0.86
BMPOUTLET	4.36	0.86
BMPOUTLET	4.38	0.86
BMPOUTLET	4.4	0.86
BMPOUTLET	4.42	0.87
BMPOUTLET	4.44	0.87
BMPOUTLET	4.46	0.87
BMPOUTLET	4.48	0.87
BMPOUTLET	4.5	0.87
BMPOUTLET	4.52	0.88
BMPOUTLET	4.54	0.88
BMPOUTLET	4.56	0.88
BMPOUTLET	4.58	0.88
BMPOUTLET	4.6	0.88
BMPOUTLET	4.62	0.89
BMPOUTLET	4.64	0.89
BMPOUTLET	4.66	0.89
BMPOUTLET	4.68	0.89
BMPOUTLET	4.7	0.89
BMPOUTLET	4.72	0.9
BMPOUTLET	4.74	0.9
BMPOUTLET	4.76	0.9
BMPOUTLET	4.78	0.9
BMPOUTLET	4.8	0.9
BMPOUTLET	4.82	0.91
BMPOUTLET	4.84	0.91
BMPOUTLET	4.86	0.91
BMPOUTLET	4.88	0.91
BMPOUTLET	4.9	0.91
BMPOUTLET	4.92	0.92
BMPOUTLET	4.94	0.92
BMPOUTLET	4.96	0.92
BMPOUTLET	4.98	0.92
BMPOUTLET	5	0.92
BMPOUTLET	5.02	0.93

BMPOUTLET	5.04	0.93
BMPOUTLET	5.06	0.93
BMPOUTLET	5.08	0.93
BMPOUTLET	5.1	0.93
BMPOUTLET	5.12	0.94
BMPOUTLET	5.14	0.94
BMPOUTLET	5.16	0.94
BMPOUTLET	5.18	0.94
BMPOUTLET	5.2	0.94
BMPOUTLET	5.22	0.94
BMPOUTLET	5.24	0.95
BMPOUTLET	5.26	0.95
BMPOUTLET	5.28	0.95
BMPOUTLET	5.3	0.95
BMPOUTLET	5.32	0.95
BMPOUTLET	5.34	0.96
BMPOUTLET	5.36	0.96
BMPOUTLET	5.38	0.96
BMPOUTLET	5.4	0.96
BMPOUTLET	5.42	0.96
BMPOUTLET	5.44	0.96
BMPOUTLET	5.46	0.97
BMPOUTLET	5.48	0.97
BMPOUTLET	5.5	0.97
BMPOUTLET	5.52	0.97
BMPOUTLET	5.54	0.97
BMPOUTLET	5.56	0.98
BMPOUTLET	5.58	0.98
BMPOUTLET	5.6	0.98
BMPOUTLET	5.62	0.98
BMPOUTLET	5.64	0.98
BMPOUTLET	5.66	0.98
BMPOUTLET	5.68	0.99
BMPOUTLET	5.7	0.99
BMPOUTLET	5.72	0.99
BMPOUTLET	5.74	0.99
BMPOUTLET	5.76	0.99
BMPOUTLET	5.78	1
BMPOUTLET	5.8	1
BMPOUTLET	5.82	1
BMPOUTLET	5.84	1
BMPOUTLET	5.86	1
BMPOUTLET	5.88	1
BMPOUTLET	5.9	1.01
BMPOUTLET	5.92	1.01
BMPOUTLET	5.94	1.01
BMPOUTLET	5.96	1.01
BMPOUTLET	5.98	1.01
BMPOUTLET	6	1.01
BMPOUTLET	6.02	1.02
BMPOUTLET	6.04	1.02

BMPOUTLET	6.06	1.02
BMPOUTLET	6.08	1.02
BMPOUTLET	6.1	1.02
BMPOUTLET	6.12	1.03
BMPOUTLET	6.14	1.03
BMPOUTLET	6.16	1.03
BMPOUTLET	6.18	1.03
BMPOUTLET	6.2	1.03
BMPOUTLET	6.22	1.03
BMPOUTLET	6.24	1.04
BMPOUTLET	6.26	1.04
BMPOUTLET	6.28	1.04
BMPOUTLET	6.3	1.04
BMPOUTLET	6.32	1.04
BMPOUTLET	6.34	1.04
BMPOUTLET	6.36	1.05
BMPOUTLET	6.38	1.05
BMPOUTLET	6.4	1.05
BMPOUTLET	6.42	1.05
BMPOUTLET	6.44	1.05
BMPOUTLET	6.46	1.05
BMPOUTLET	6.48	1.06
BMPOUTLET	6.5	1.06
BMPOUTLET	6.52	1.06
BMPOUTLET	6.54	1.06
BMPOUTLET	6.56	1.06
BMPOUTLET	6.58	1.06
BMPOUTLET	6.6	1.07
BMPOUTLET	6.62	1.07
BMPOUTLET	6.64	1.07
BMPOUTLET	6.66	1.07
BMPOUTLET	6.68	1.07
BMPOUTLET	6.7	1.07
BMPOUTLET	6.72	1.08
BMPOUTLET	6.74	1.08
BMPOUTLET	6.76	1.08
BMPOUTLET	6.78	1.08
BMPOUTLET	6.8	1.08
BMPOUTLET	6.82	1.08
BMPOUTLET	6.84	1.09
BMPOUTLET	6.86	1.09
BMPOUTLET	6.88	1.09
BMPOUTLET	6.9	1.09
BMPOUTLET	6.92	1.09
BMPOUTLET	6.94	1.09
BMPOUTLET	6.96	1.1
BMPOUTLET	6.98	1.1
BMPOUTLET	7	1.1
BMPOUTLET	7.02	1.1
BMPOUTLET	7.04	1.1
BMPOUTLET	7.06	1.1

BMPOUTLET	7.08	1.1
BMPOUTLET	7.1	1.11
BMPOUTLET	7.12	1.11
BMPOUTLET	7.14	1.11
BMPOUTLET	7.16	1.11
BMPOUTLET	7.18	1.11
BMPOUTLET	7.2	1.11
BMPOUTLET	7.22	1.12
BMPOUTLET	7.24	1.12
BMPOUTLET	7.26	1.12
BMPOUTLET	7.28	1.12
BMPOUTLET	7.3	1.12
BMPOUTLET	7.32	1.12
BMPOUTLET	7.34	1.13
BMPOUTLET	7.36	1.13
BMPOUTLET	7.38	1.13
BMPOUTLET	7.4	1.13
BMPOUTLET	7.42	1.13
BMPOUTLET	7.44	1.13
BMPOUTLET	7.46	1.13
BMPOUTLET	7.48	1.14
BMPOUTLET	7.5	1.14
BMPOUTLET	7.52	1.14
BMPOUTLET	7.54	1.14
BMPOUTLET	7.56	1.14
BMPOUTLET	7.58	1.14
BMPOUTLET	7.6	1.15
BMPOUTLET	7.62	1.15
BMPOUTLET	7.64	1.15
BMPOUTLET	7.66	1.15
BMPOUTLET	7.68	1.15
BMPOUTLET	7.7	1.15
BMPOUTLET	7.72	1.15
BMPOUTLET	7.74	1.16
BMPOUTLET	7.76	1.16
BMPOUTLET	7.78	1.16
BMPOUTLET	7.8	1.16
BMPOUTLET	7.82	1.16
BMPOUTLET	7.84	1.16
BMPOUTLET	7.86	1.17
BMPOUTLET	7.88	1.17
BMPOUTLET	7.9	1.17
BMPOUTLET	7.92	1.17
BMPOUTLET	7.94	1.17
BMPOUTLET	7.96	1.17
BMPOUTLET	7.98	1.17
BMPOUTLET	8	1.18
BMPOUTLET	8.02	1.29
BMPOUTLET	8.04	1.49
BMPOUTLET	8.06	1.76
BMPOUTLET	8.08	2.07

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BMPOUTLET                   8.1         2.42
BMPOUTLET                   8.12        2.82
BMPOUTLET                   8.14        3.24
BMPOUTLET                   8.16        3.7
BMPOUTLET                   8.18        4.19
BMPOUTLET                   8.2         4.7
BMPOUTLET                   8.22        5.24
BMPOUTLET                   8.24        5.81
BMPOUTLET                   8.26        6.4
BMPOUTLET                   8.28        7.01
BMPOUTLET                   8.3         7.65
BMPOUTLET                   8.32        8.3
BMPOUTLET                   8.34        8.98
BMPOUTLET                   8.36        9.68
BMPOUTLET                   8.38        10.4
BMPOUTLET                   8.4         11.13
BMPOUTLET                   8.42        11.89
BMPOUTLET                   8.44        12.66
BMPOUTLET                   8.46        13.45
BMPOUTLET                   8.48        14.26
BMPOUTLET                   8.5         15.09
;
VAULTOUTLET      Rating     0           0
VAULTOUTLET                 0.03        0
VAULTOUTLET                 0.06        0.01
VAULTOUTLET                 0.09        0.02
VAULTOUTLET                 0.12        0.03
VAULTOUTLET                 0.15        0.04
VAULTOUTLET                 0.18        0.05
VAULTOUTLET                 0.21        0.06
VAULTOUTLET                 0.24        0.07
VAULTOUTLET                 0.27        0.08
VAULTOUTLET                 0.3         0.08
VAULTOUTLET                 0.33        0.09
VAULTOUTLET                 0.36        0.1
VAULTOUTLET                 0.39        0.1
VAULTOUTLET                 0.42        0.11
VAULTOUTLET                 0.45        0.11
VAULTOUTLET                 0.48        0.12
VAULTOUTLET                 0.51        0.12
VAULTOUTLET                 0.54        0.13
VAULTOUTLET                 0.57        0.13
VAULTOUTLET                 0.6         0.13
VAULTOUTLET                 0.63        0.14
VAULTOUTLET                 0.66        0.14
VAULTOUTLET                 0.69        0.15
VAULTOUTLET                 0.72        0.15
VAULTOUTLET                 0.75        0.15
VAULTOUTLET                 0.78        0.16
VAULTOUTLET                 0.81        0.16
VAULTOUTLET                 0.84        0.16
```

VAULTOUTLET	0.87	0.17
VAULTOUTLET	0.9	0.17
VAULTOUTLET	0.93	0.17
VAULTOUTLET	0.96	0.18
VAULTOUTLET	0.99	0.18
VAULTOUTLET	1.02	0.18
VAULTOUTLET	1.05	0.19
VAULTOUTLET	1.08	0.19
VAULTOUTLET	1.11	0.19
VAULTOUTLET	1.14	0.19
VAULTOUTLET	1.17	0.2
VAULTOUTLET	1.2	0.2
VAULTOUTLET	1.23	0.2
VAULTOUTLET	1.26	0.21
VAULTOUTLET	1.29	0.21
VAULTOUTLET	1.32	0.21
VAULTOUTLET	1.35	0.21
VAULTOUTLET	1.38	0.22
VAULTOUTLET	1.41	0.22
VAULTOUTLET	1.44	0.22
VAULTOUTLET	1.47	0.22
VAULTOUTLET	1.5	0.23
VAULTOUTLET	1.53	0.23
VAULTOUTLET	1.56	0.23
VAULTOUTLET	1.59	0.23
VAULTOUTLET	1.62	0.24
VAULTOUTLET	1.65	0.24
VAULTOUTLET	1.68	0.24
VAULTOUTLET	1.71	0.24
VAULTOUTLET	1.74	0.24
VAULTOUTLET	1.77	0.25
VAULTOUTLET	1.8	0.25
VAULTOUTLET	1.83	0.25
VAULTOUTLET	1.86	0.25
VAULTOUTLET	1.89	0.26
VAULTOUTLET	1.92	0.26
VAULTOUTLET	1.95	0.26
VAULTOUTLET	1.98	0.26
VAULTOUTLET	2.01	0.26
VAULTOUTLET	2.04	0.27
VAULTOUTLET	2.07	0.27
VAULTOUTLET	2.1	0.27
VAULTOUTLET	2.13	0.27
VAULTOUTLET	2.16	0.27
VAULTOUTLET	2.19	0.28
VAULTOUTLET	2.22	0.28
VAULTOUTLET	2.25	0.28
VAULTOUTLET	2.28	0.28
VAULTOUTLET	2.31	0.28
VAULTOUTLET	2.34	0.29
VAULTOUTLET	2.37	0.29

VAULTOUTLET	2.4	0.29
VAULTOUTLET	2.43	0.29
VAULTOUTLET	2.46	0.29
VAULTOUTLET	2.49	0.3
VAULTOUTLET	2.52	0.3
VAULTOUTLET	2.55	0.3
VAULTOUTLET	2.58	0.3
VAULTOUTLET	2.61	0.3
VAULTOUTLET	2.64	0.3
VAULTOUTLET	2.67	0.31
VAULTOUTLET	2.7	0.31
VAULTOUTLET	2.73	0.31
VAULTOUTLET	2.76	0.31
VAULTOUTLET	2.79	0.31
VAULTOUTLET	2.82	0.32
VAULTOUTLET	2.85	0.32
VAULTOUTLET	2.88	0.32
VAULTOUTLET	2.91	0.32
VAULTOUTLET	2.94	0.32
VAULTOUTLET	2.97	0.32
VAULTOUTLET	3	0.33
VAULTOUTLET	3.03	0.33
VAULTOUTLET	3.06	0.33
VAULTOUTLET	3.09	0.33
VAULTOUTLET	3.12	0.33
VAULTOUTLET	3.15	0.33
VAULTOUTLET	3.18	0.34
VAULTOUTLET	3.21	0.34
VAULTOUTLET	3.24	0.34
VAULTOUTLET	3.27	0.34
VAULTOUTLET	3.3	0.34
VAULTOUTLET	3.33	0.34
VAULTOUTLET	3.36	0.35
VAULTOUTLET	3.39	0.35
VAULTOUTLET	3.42	0.35
VAULTOUTLET	3.45	0.35
VAULTOUTLET	3.48	0.35
VAULTOUTLET	3.51	0.35
VAULTOUTLET	3.54	0.35
VAULTOUTLET	3.57	0.36
VAULTOUTLET	3.6	0.36
VAULTOUTLET	3.63	0.36
VAULTOUTLET	3.66	0.36
VAULTOUTLET	3.69	0.36
VAULTOUTLET	3.72	0.36
VAULTOUTLET	3.75	0.37
VAULTOUTLET	3.78	0.37
VAULTOUTLET	3.81	0.37
VAULTOUTLET	3.84	0.37
VAULTOUTLET	3.87	0.37
VAULTOUTLET	3.9	0.37

VAULTOUTLET	3.93	0.37
VAULTOUTLET	3.96	0.38
VAULTOUTLET	3.99	0.38
VAULTOUTLET	4.02	0.38
VAULTOUTLET	4.05	0.38
VAULTOUTLET	4.08	0.38
VAULTOUTLET	4.11	0.38
VAULTOUTLET	4.14	0.38
VAULTOUTLET	4.17	0.39
VAULTOUTLET	4.2	0.39
VAULTOUTLET	4.23	0.39
VAULTOUTLET	4.26	0.39
VAULTOUTLET	4.29	0.39
VAULTOUTLET	4.32	0.39
VAULTOUTLET	4.35	0.39
VAULTOUTLET	4.38	0.4
VAULTOUTLET	4.41	0.4
VAULTOUTLET	4.44	0.4
VAULTOUTLET	4.47	0.4
VAULTOUTLET	4.5	0.4
VAULTOUTLET	4.53	0.4
VAULTOUTLET	4.56	0.4
VAULTOUTLET	4.59	0.41
VAULTOUTLET	4.62	0.41
VAULTOUTLET	4.65	0.41
VAULTOUTLET	4.68	0.41
VAULTOUTLET	4.71	0.41
VAULTOUTLET	4.74	0.41
VAULTOUTLET	4.77	0.41
VAULTOUTLET	4.8	0.41
VAULTOUTLET	4.83	0.42
VAULTOUTLET	4.86	0.42
VAULTOUTLET	4.89	0.42
VAULTOUTLET	4.92	0.42
VAULTOUTLET	4.95	0.42
VAULTOUTLET	4.98	0.42
VAULTOUTLET	5.01	0.42
VAULTOUTLET	5.04	0.42
VAULTOUTLET	5.07	0.43
VAULTOUTLET	5.1	0.43
VAULTOUTLET	5.13	0.43
VAULTOUTLET	5.16	0.43
VAULTOUTLET	5.19	0.43
VAULTOUTLET	5.22	0.43
VAULTOUTLET	5.25	0.43
VAULTOUTLET	5.28	0.44
VAULTOUTLET	5.31	0.44
VAULTOUTLET	5.34	0.44
VAULTOUTLET	5.37	0.44
VAULTOUTLET	5.4	0.44
VAULTOUTLET	5.43	0.44

VAULTOUTLET	5.46	0.44
VAULTOUTLET	5.49	0.44
VAULTOUTLET	5.52	0.45
VAULTOUTLET	5.55	0.45
VAULTOUTLET	5.58	0.45
VAULTOUTLET	5.61	0.45
VAULTOUTLET	5.64	0.45
VAULTOUTLET	5.67	0.45
VAULTOUTLET	5.7	0.45
VAULTOUTLET	5.73	0.45
VAULTOUTLET	5.76	0.45
VAULTOUTLET	5.79	0.46
VAULTOUTLET	5.82	0.46
VAULTOUTLET	5.85	0.46
VAULTOUTLET	5.88	0.46
VAULTOUTLET	5.91	0.46
VAULTOUTLET	5.94	0.46
VAULTOUTLET	5.97	0.46
VAULTOUTLET	6	0.46
VAULTOUTLET	6.03	0.47
VAULTOUTLET	6.06	0.47
VAULTOUTLET	6.09	0.47
VAULTOUTLET	6.12	0.47
VAULTOUTLET	6.15	0.47
VAULTOUTLET	6.18	0.47
VAULTOUTLET	6.21	0.47
VAULTOUTLET	6.24	0.47
VAULTOUTLET	6.27	0.48
VAULTOUTLET	6.3	0.48
VAULTOUTLET	6.33	0.48
VAULTOUTLET	6.36	0.48
VAULTOUTLET	6.39	0.48
VAULTOUTLET	6.42	0.48
VAULTOUTLET	6.45	0.48
VAULTOUTLET	6.48	0.48
VAULTOUTLET	6.51	0.48
VAULTOUTLET	6.54	0.49
VAULTOUTLET	6.57	0.49
VAULTOUTLET	6.6	0.49
VAULTOUTLET	6.63	0.49
VAULTOUTLET	6.66	0.49
VAULTOUTLET	6.69	0.49
VAULTOUTLET	6.72	0.49
VAULTOUTLET	6.75	0.49
VAULTOUTLET	6.78	0.49
VAULTOUTLET	6.81	0.5
VAULTOUTLET	6.84	0.5
VAULTOUTLET	6.87	0.5
VAULTOUTLET	6.9	0.5
VAULTOUTLET	6.93	0.5
VAULTOUTLET	6.96	0.5

VAULTOUTLET	6.99	0.5
VAULTOUTLET	7.02	0.5
VAULTOUTLET	7.05	0.5
VAULTOUTLET	7.08	0.51
VAULTOUTLET	7.11	0.51
VAULTOUTLET	7.14	0.51
VAULTOUTLET	7.17	0.51
VAULTOUTLET	7.2	0.51
VAULTOUTLET	7.23	0.51
VAULTOUTLET	7.26	0.51
VAULTOUTLET	7.29	0.51
VAULTOUTLET	7.32	0.51
VAULTOUTLET	7.35	0.52
VAULTOUTLET	7.38	0.52
VAULTOUTLET	7.41	0.52
VAULTOUTLET	7.44	0.52
VAULTOUTLET	7.47	0.52
VAULTOUTLET	7.5	0.52
VAULTOUTLET	7.53	0.52
VAULTOUTLET	7.56	0.52
VAULTOUTLET	7.59	0.52
VAULTOUTLET	7.62	0.52
VAULTOUTLET	7.65	0.53
VAULTOUTLET	7.68	0.53
VAULTOUTLET	7.71	0.53
VAULTOUTLET	7.74	0.53
VAULTOUTLET	7.77	0.53
VAULTOUTLET	7.8	0.53
VAULTOUTLET	7.83	0.53
VAULTOUTLET	7.86	0.53
VAULTOUTLET	7.89	0.53
VAULTOUTLET	7.92	0.53
VAULTOUTLET	7.95	0.54
VAULTOUTLET	7.98	0.54
VAULTOUTLET	8.01	0.54
VAULTOUTLET	8.04	0.54
VAULTOUTLET	8.07	0.54
VAULTOUTLET	8.1	0.54
VAULTOUTLET	8.13	0.54
VAULTOUTLET	8.16	0.54
VAULTOUTLET	8.19	0.54
VAULTOUTLET	8.22	0.55
VAULTOUTLET	8.25	0.55
VAULTOUTLET	8.28	0.55
VAULTOUTLET	8.31	0.55
VAULTOUTLET	8.34	0.55
VAULTOUTLET	8.37	0.55
VAULTOUTLET	8.4	0.55
VAULTOUTLET	8.43	0.55
VAULTOUTLET	8.46	0.55
VAULTOUTLET	8.49	0.55

VAULTOUTLET	8.52	0.56
VAULTOUTLET	8.55	0.56
VAULTOUTLET	8.58	0.56
VAULTOUTLET	8.61	0.56
VAULTOUTLET	8.64	0.56
VAULTOUTLET	8.67	0.56
VAULTOUTLET	8.7	0.56
VAULTOUTLET	8.73	0.56
VAULTOUTLET	8.76	0.56
VAULTOUTLET	8.79	0.56
VAULTOUTLET	8.82	0.56
VAULTOUTLET	8.85	0.57
VAULTOUTLET	8.88	0.57
VAULTOUTLET	8.91	0.57
VAULTOUTLET	8.94	0.57
VAULTOUTLET	8.97	0.57
VAULTOUTLET	9	0.57
VAULTOUTLET	9.03	0.57
VAULTOUTLET	9.06	0.57
VAULTOUTLET	9.09	0.57
VAULTOUTLET	9.12	0.57
VAULTOUTLET	9.15	0.58
VAULTOUTLET	9.18	0.58
VAULTOUTLET	9.21	0.58
VAULTOUTLET	9.24	0.58
VAULTOUTLET	9.27	0.58
VAULTOUTLET	9.3	0.58
VAULTOUTLET	9.33	0.58
VAULTOUTLET	9.36	0.58
VAULTOUTLET	9.39	0.58
VAULTOUTLET	9.42	0.62
VAULTOUTLET	9.45	0.73
VAULTOUTLET	9.48	0.88
VAULTOUTLET	9.51	1.06
VAULTOUTLET	9.54	1.26
VAULTOUTLET	9.57	1.49
VAULTOUTLET	9.6	1.74
VAULTOUTLET	9.63	2.01
VAULTOUTLET	9.66	2.29
VAULTOUTLET	9.69	2.6
VAULTOUTLET	9.72	2.92
VAULTOUTLET	9.75	3.25
VAULTOUTLET	9.78	3.6
VAULTOUTLET	9.81	3.97
VAULTOUTLET	9.84	4.34
VAULTOUTLET	9.87	4.74
VAULTOUTLET	9.9	5.14
VAULTOUTLET	9.93	5.49
VAULTOUTLET	9.96	5.79
VAULTOUTLET	9.99	6.07
VAULTOUTLET	10.02	6.34

VAULTOUTLET	10.05	6.59
VAULTOUTLET	10.08	6.82
VAULTOUTLET	10.11	7.05
VAULTOUTLET	10.14	7.27
VAULTOUTLET	10.17	7.48
VAULTOUTLET	10.2	7.69
VAULTOUTLET	10.23	7.88
VAULTOUTLET	10.26	8.08
VAULTOUTLET	10.29	8.26
VAULTOUTLET	10.32	8.45
VAULTOUTLET	10.35	8.63
VAULTOUTLET	10.38	8.8
VAULTOUTLET	10.41	8.97
VAULTOUTLET	10.44	9.14
VAULTOUTLET	10.47	9.3
VAULTOUTLET	10.5	9.46
VAULTOUTLET	10.53	9.62
VAULTOUTLET	10.56	9.78
VAULTOUTLET	10.59	9.93
VAULTOUTLET	10.62	10.08
VAULTOUTLET	10.65	10.23
VAULTOUTLET	10.68	10.37
VAULTOUTLET	10.71	10.51
VAULTOUTLET	10.74	10.66
VAULTOUTLET	10.77	10.8
VAULTOUTLET	10.8	10.93
VAULTOUTLET	10.83	11.07
VAULTOUTLET	10.86	11.2
VAULTOUTLET	10.89	11.33
VAULTOUTLET	10.92	11.46
VAULTOUTLET	10.95	11.59
VAULTOUTLET	10.98	11.72
VAULTOUTLET	11.01	11.85
VAULTOUTLET	11.04	11.97
VAULTOUTLET	11.07	12.09
VAULTOUTLET	11.1	12.22
VAULTOUTLET	11.13	12.34
VAULTOUTLET	11.16	12.46
VAULTOUTLET	11.19	12.57
VAULTOUTLET	11.22	12.69
VAULTOUTLET	11.25	12.81
VAULTOUTLET	11.28	12.92
VAULTOUTLET	11.31	13.04
VAULTOUTLET	11.34	13.15
VAULTOUTLET	11.37	13.26
VAULTOUTLET	11.4	13.37
VAULTOUTLET	11.43	13.48
VAULTOUTLET	11.46	13.59
VAULTOUTLET	11.49	13.7
VAULTOUTLET	11.52	13.81
VAULTOUTLET	11.55	13.91

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VAULTOUTLET                11.58      14.02
VAULTOUTLET                11.61      14.12
VAULTOUTLET                11.64      14.23
VAULTOUTLET                11.67      14.33
VAULTOUTLET                11.7       14.43
VAULTOUTLET                11.73      14.53
VAULTOUTLET                11.76      14.63
VAULTOUTLET                11.79      14.73
VAULTOUTLET                11.82      14.83
VAULTOUTLET                11.85      14.93
VAULTOUTLET                11.88      15.03
VAULTOUTLET                11.91      15.13
VAULTOUTLET                11.94      15.22
VAULTOUTLET                11.97      15.32
VAULTOUTLET                12         15.42
VAULTOUTLET                12.03      15.51
VAULTOUTLET                12.06      15.6
VAULTOUTLET                12.09      15.7
VAULTOUTLET                12.12      15.79
VAULTOUTLET                12.15      15.88
VAULTOUTLET                12.18      15.98
VAULTOUTLET                12.21      16.07
VAULTOUTLET                12.24      16.16
VAULTOUTLET                12.27      16.25
VAULTOUTLET                12.3       16.34
VAULTOUTLET                12.33      16.43
VAULTOUTLET                12.36      16.52
VAULTOUTLET                12.39      16.61
VAULTOUTLET                12.42      16.69
VAULTOUTLET                12.45      16.78
VAULTOUTLET                12.48      16.87
VAULTOUTLET                12.51      17.1
VAULTOUTLET                12.54      18.22
VAULTOUTLET                12.57      19.86
VAULTOUTLET                12.6       21.87
VAULTOUTLET                12.63      24.2
VAULTOUTLET                12.66      26.81
VAULTOUTLET                12.69      29.67
VAULTOUTLET                12.72      32.76
VAULTOUTLET                12.75      36.05
VAULTOUTLET                12.78      39.55
VAULTOUTLET                12.81      43.23
VAULTOUTLET                12.84      47.1
VAULTOUTLET                12.87      51.13
VAULTOUTLET                12.9       55.32
VAULTOUTLET                12.93      59.68
VAULTOUTLET                12.96      64.18
VAULTOUTLET                13         68.83
;
BMP-A1          Storage    0          1455.4
BMP-A1                     5          1455.4
```

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BMP-A1                      5.01       306.4
BMP-A1                      6.51       306.4
BMP-A1                      6.52       1532
BMP-A1                      8.52       1532
;
BMP-A2           Storage    0          3809.5
BMP-A2                      5          3809.5
BMP-A2                      5.01       802
BMP-A2                      6.51       802
BMP-A2                      6.52       4010
BMP-A2                      8.52       4010
;
BMP-A3           Storage    0          4168.6
BMP-A3                      5          4168.6
BMP-A3                      5.01       877.6
BMP-A3                      6.51       877.6
BMP-A3                      6.52       4388
BMP-A3                      8.52       4388
;
BMP-A4           Storage    0          1528.55
BMP-A4                      5          1528.55
BMP-A4                      5.01       321.8
BMP-A4                      6.51       321.8
BMP-A4                      6.52       1609
BMP-A4                      8.52       1609
;
VAULT            Storage    0          2809
VAULT                       13         2809
VAULT                       13.001     0

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
OCEANSIDE        FILE "J:\Active Jobs\3084 Nolen Communities Fox Point\CIVIL\REPORTS\SWQMP\SWMM\Rainfall_data\oceanside.dat"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC-A            -262.500           2412.500
```

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POC-B            5655.226           2542.902
BMP-A1           -4625.000          4927.083
BMP-A2           -2619.048          5671.769
BMP-A3           -646.259           5484.694
BMP-A4           969.388            4651.361
VAULT            -2354.167          2739.583

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA-A1           -4800.307          7235.023
DMA-B1           4563.183           6973.479
DMA-A2           -2788.018          7327.189
DMA-A3           -791.091           7465.438
DMA-B2           6185.647           6848.674
BMP-B1           4453.978           5195.008
BMP-B2           5920.437           5054.602
DMA-A4           1205.837           7327.189
DMA-A5           2757.296           7188.940
DMA-A5           2726.575           7219.662
BMP-A5           2275.000           5212.500

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
OCEANSIDE        3356.375           8125.960
```

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
--------------------------------------------------------------

3084 Fox Point Farms
Pre-Project Condition


***********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
***********************************************************

****************
Analysis Options
****************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... NO
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Starting Date ............ 08/28/1951 05:00:00
Ending Date .............. 05/23/2008 23:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 01:00:00
Wet Time Step ............ 00:15:00
Dry Time Step ............ 04:00:00


*************************        Volume         Depth
Runoff Quantity Continuity     acre-feet        inches
*************************     ---------       -------
Total Precipitation ......       991.257       675.090
Evaporation Loss .........        19.157        13.047
Infiltration Loss ........       785.776       535.148
Surface Runoff ...........       204.165       139.046
Final Storage ............         0.000         0.000
Continuity Error (%) .....        -1.800


*************************        Volume        Volume
Flow Routing Continuity        acre-feet      10^6 gal
*************************     ---------     ----------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......       204.165        66.530
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........       204.165        66.530
Flooding Loss ............         0.000         0.000
```

```
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.000         0.000
Continuity Error (%) .....         0.000
```

```
**************************
Subcatchment Runoff Summary
**************************
```

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Imperv Runoff in	Perv Runoff in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DMA-A	675.09	0.00	13.05	535.62	0.00	138.51	138.51	52.20	15.34	0.205
DMA-B	675.09	0.00	13.02	533.40	0.00	141.02	141.02	14.32	4.17	0.209

```
Analysis begun on:  Fri May  8 08:06:53 2020
Analysis ended on:  Fri May  8 08:07:20 2020
Total elapsed time: 00:00:27
```

```
  EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
  --------------------------------------------------------------

  3084 Fox Point Farms
  Post-Project Condition


  ***********************************************************
  NOTE: The summary statistics displayed in this report are
  based on results found at every computational time step,
  not just on results from each reporting time step.
  ***********************************************************

  ****************
  Analysis Options
  ****************
  Flow Units ............... CFS
  Process Models:
    Rainfall/Runoff ........ YES
    RDII ................... NO
    Snowmelt ............... NO
    Groundwater ............ NO
    Flow Routing ........... YES
    Ponding Allowed ........ NO
    Water Quality .......... NO
  Infiltration Method ...... GREEN_AMPT
  Flow Routing Method ...... KINWAVE
  Starting Date ............ 08/28/1951 05:00:00
  Ending Date .............. 05/23/2008 23:00:00
  Antecedent Dry Days ...... 0.0
  Report Time Step ......... 01:00:00
  Wet Time Step ............ 00:15:00
  Dry Time Step ............ 04:00:00
  Routing Time Step ........ 60.00 sec


  *************************        Volume         Depth
  Runoff Quantity Continuity     acre-feet        inches
  *************************     ---------       -------
  Initial LID Storage ......         0.004         0.003
  Total Precipitation ......      1079.963       675.090
  Evaporation Loss .........        60.953        38.102
  Infiltration Loss ........       431.608       269.800
  Surface Runoff ...........       568.983       355.674
  LID Drainage .............        30.840        19.278
  Final Storage ............         0.041         0.025
  Continuity Error (%) .....        -1.153


  *************************        Volume        Volume
  Flow Routing Continuity        acre-feet      10^6 gal
  *************************     ---------     ---------
  Dry Weather Inflow .......         0.000         0.000
  Wet Weather Inflow .......       599.819       195.460
```

Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	599.414	195.328
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.031	0.010
Continuity Error (%)	0.062	

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****

Minimum Time Step	:	60.00 sec
Average Time Step	:	60.00 sec
Maximum Time Step	:	60.00 sec
Percent in Steady State	:	0.00
Average Iterations per Step	:	1.00
Percent Not Converging	:	0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Imperv Runoff in	Perv Runoff in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DMA-A1	675.09	0.00	52.22	146.28	440.52	45.86	486.39	22.45	2.02	0.720
DMA-B1	675.09	0.00	45.04	195.02	383.51	61.73	445.24	4.71	0.46	0.660
DMA-A2	675.09	0.00	51.43	151.54	434.57	47.38	481.95	60.20	5.45	0.714
DMA-A3	675.09	0.00	51.74	152.54	433.33	46.90	480.23	65.20	5.93	0.711
DMA-B2	675.09	0.00	34.74	278.25	284.86	86.20	371.06	5.94	0.69	0.550
BMP-B1	675.09	13858.00	892.56	0.00	0.00	0.00	13639.29	4.64	0.47	0.938
BMP-B2	675.09	23847.61	924.52	0.00	0.00	0.00	23595.96	5.88	0.70	0.962
DMA-A4	675.09	0.00	13.27	464.53	69.87	131.63	201.49	34.47	7.14	0.298
DMA-A5	675.09	0.00	5.55	515.33	0.00	161.49	161.49	2.59	0.66	0.239
BMP-A5	675.09	18792.63	539.82	0.00	0.00	0.00	18927.46	2.61	0.65	0.972

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow in	Evap Loss in	Infil Loss in	Surface Outflow in	Drain Outflow in	Initial Storage in	Final Storage in	Continuity Error %
BMP-B1	BMP-B1	14533.09	892.59	0.00	1843.40	11796.30	1.80	2.78	-0.00
BMP-B2	BMP-B2	24522.70	924.55	0.00	4928.91	18667.97	1.80	3.27	-0.00
BMP-A5	BMP-A5	19467.72	539.84	0.00	8887.11	10040.97	1.80	1.88	-0.00

****
Node Depth Summary
****

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
POC-A	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
POC-B	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
BMP-A1	STORAGE	0.04	6.52	6.52	15835 16:07	6.15
BMP-A2	STORAGE	0.05	8.19	8.19	15835 15:22	8.19
BMP-A3	STORAGE	0.05	8.20	8.20	15835 15:22	8.20
BMP-A4	STORAGE	0.05	8.28	8.28	18857 12:01	8.28
VAULT	STORAGE	0.14	12.08	12.08	15835 16:03	12.07

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
POC-A	OUTFALL	0.65	16.21	15835 16:03	2.61	185	0.000
POC-B	OUTFALL	1.17	1.17	18857 12:01	10.5	10.5	0.000
BMP-A1	STORAGE	2.02	2.02	18857 12:01	22.5	22.5	0.028
BMP-A2	STORAGE	5.45	5.45	18857 12:01	60.2	60.2	0.036
BMP-A3	STORAGE	5.93	5.93	18857 12:01	65.2	65.2	0.035
BMP-A4	STORAGE	7.14	7.14	18857 12:01	34.5	34.5	0.034
VAULT	STORAGE	0.00	15.94	15835 16:01	0	182	0.032

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 ft3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
BMP-A1	0.063	1	0	0	7.761	72	15835 16:06	1.06
BMP-A2	0.194	1	0	0	26.986	95	15835 15:20	4.39
BMP-A3	0.217	1	0	0	29.594	96	15835 15:21	4.76
BMP-A4	0.073	1	0	0	10.983	97	18857 12:01	7.14
VAULT	0.400	1	0	0	33.948	93	15835 16:02	15.67

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
POC-A	8.08	0.17	16.21	184.791
POC-B	5.85	0.01	1.17	10.522
System	6.97	0.18	1.17	195.314

****
Link Flow Summary
****

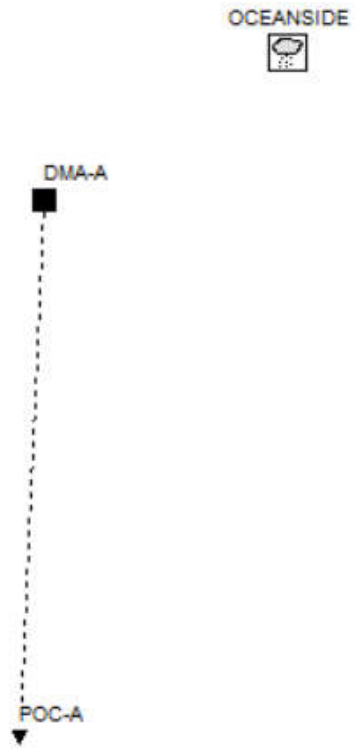
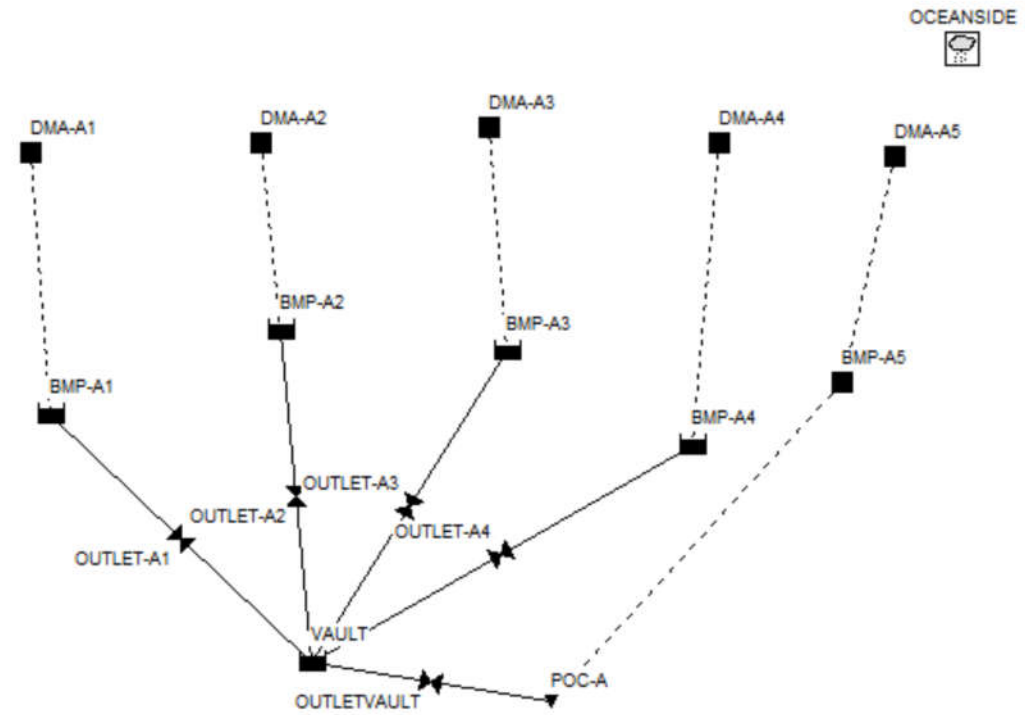
Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
OUTLET-A2	DUMMY	4.39	15835 15:22			
OUTLET-A3	DUMMY	4.76	15835 15:22			
OUTLET-A4	DUMMY	7.14	18857 12:01			
OUTLETVAULT	DUMMY	15.67	15835 16:03			
OUTLET-A1	DUMMY	1.06	15835 16:04			

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Fri May 8 10:43:04 2020
Analysis ended on: Fri May 8 10:44:12 2020
Total elapsed time: 00:01:08

SWMM MODEL SCHEMATICS

PRE-PROJECT MODEL	POST-PROJECT MODEL
	

3205 Fox Point Farms
5/8/2020

POC-A SWMM INPUT

PRE-PROJECT											
DMA	BMP	Area (ac)	Width (Area/Flow Length) (ft)	% Slope	% Impervious	% "B" Soils	% "C" Soils	% "D" Soils	Weighted Infiltration (in/hr):	Weighted Suction Head (in):	Weighted Initial Deficit:
DMA-A	N/A	13.88	1344	1.5%	0%	0%	0%	100%	0.025	9.000	0.330
	Total:	**13.88**									

POST-PROJECT											
DMA	BMP	Area (ac)	Width (Area/Flow Length) (ft)	% Impervious	% Slope	% "B" Soils	% "C" Soils	% "D" Soils	Weighted Infiltration (in/hr):	Weighted Suction Head (in):	Weighted Initial Deficit:
DMA-A1	A1	1.70	805	71.6%	1.0%	0%	0%	100%	0.025	9.000	0.330
DMA-A2	A2	4.60	2303	70.6%	1.0%	0%	0%	100%	0.025	9.000	0.330
DMA-A3	A3	5.00	2036	70.5%	1.0%	0%	0%	100%	0.025	9.000	0.330
DMA-A4	A4	6.30	1475	11.3%	1.0%	0%	0%	100%	0.025	9.000	0.330
DMA-A5	A5	0.59	540	0.0%	1.0%	0%	0%	100%	0.025	9.000	0.330
BMP-A5	A5	0.00507	15	0.0%	0.0%	0%	0%	100%	0.025	9.000	0.330
	Total:	**18.20**									

Infiltration:		
D:	0.025	in/hr

Suction Head:		
D:	9	in

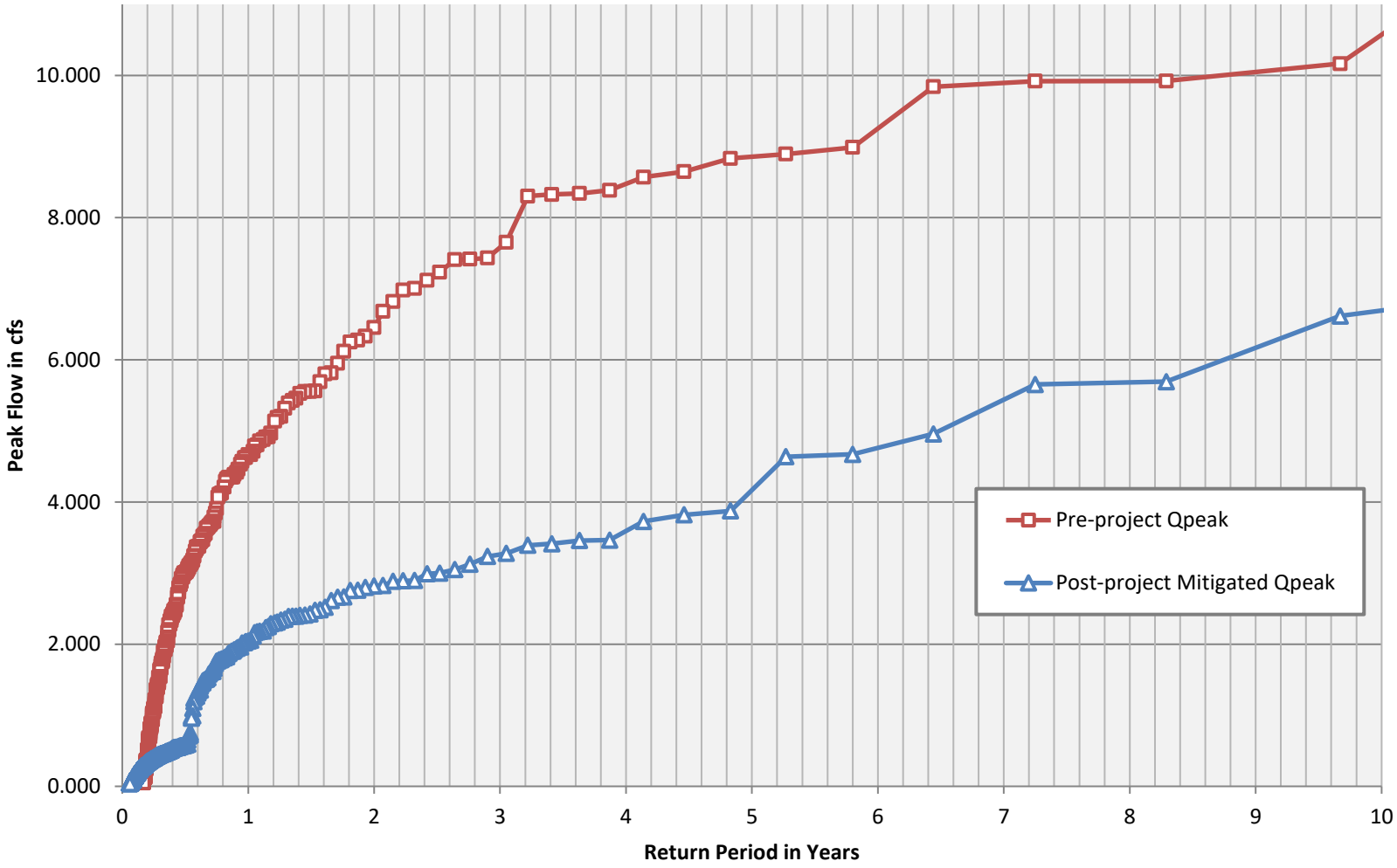
Initial Deficit	
D:	0.33

POC-A

Peak Flow Frequency Summary

Return Period	Pre-project Qpeak (cfs)	Post-project - Mitigated Q (cfs)
LF = 0.1xQ2	0.646	0.282
2-year	6.455	2.820
5-year	8.857	4.169
10-year	10.573	6.692

Peak Flow Frequency Curves
POC-A



Low-flow Threshold:	10%	
0.1xQ2 (Pre):	0.646	cfs
Q10 (Pre):	10.573	cfs
Ordinate #:	100	
Incremental Q (Pre):	0.09927	cfs
Total Hourly Data:	497370	hours

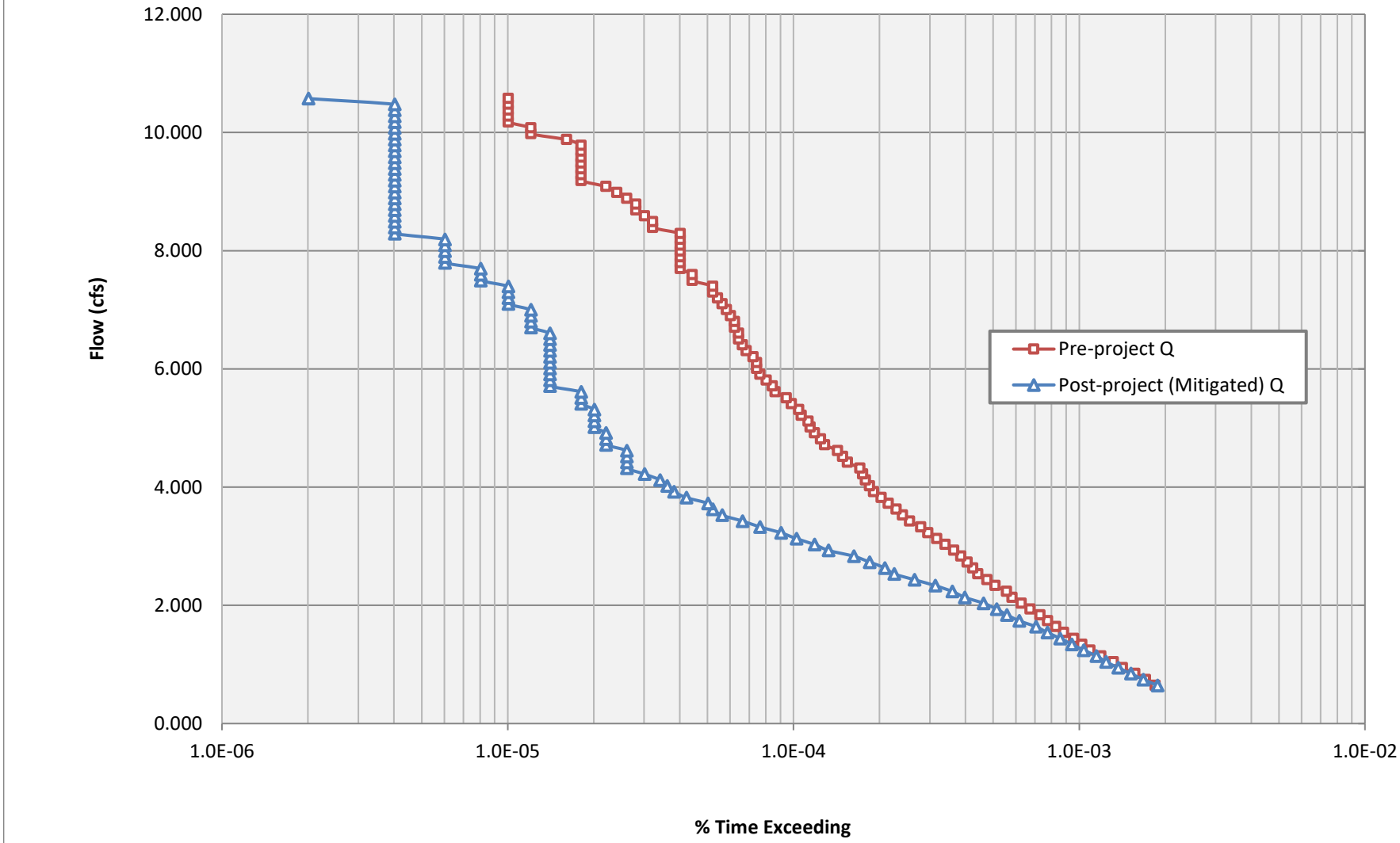
POC-A

The proposed BMP: PASSED

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
0	0.646	919	1.85E-03	936	1.88E-03	102%	Pass
1	0.745	850	1.71E-03	834	1.68E-03	98%	Pass
2	0.844	779	1.57E-03	755	1.52E-03	97%	Pass
3	0.943	705	1.42E-03	682	1.37E-03	97%	Pass
4	1.043	655	1.32E-03	618	1.24E-03	94%	Pass
5	1.142	593	1.19E-03	572	1.15E-03	96%	Pass
6	1.241	543	1.09E-03	516	1.04E-03	95%	Pass
7	1.340	509	1.02E-03	469	9.43E-04	92%	Pass
8	1.440	476	9.57E-04	427	8.59E-04	90%	Pass
9	1.539	439	8.83E-04	385	7.74E-04	88%	Pass
10	1.638	412	8.28E-04	351	7.06E-04	85%	Pass
11	1.738	386	7.76E-04	307	6.17E-04	80%	Pass
12	1.837	363	7.30E-04	278	5.59E-04	77%	Pass
13	1.936	335	6.74E-04	256	5.15E-04	76%	Pass
14	2.035	312	6.27E-04	230	4.62E-04	74%	Pass
15	2.135	290	5.83E-04	198	3.98E-04	68%	Pass
16	2.234	277	5.57E-04	179	3.60E-04	65%	Pass
17	2.333	253	5.09E-04	156	3.14E-04	62%	Pass
18	2.432	237	4.77E-04	132	2.65E-04	56%	Pass
19	2.532	220	4.42E-04	112	2.25E-04	51%	Pass
20	2.631	211	4.24E-04	104	2.09E-04	49%	Pass
21	2.730	202	4.06E-04	92	1.85E-04	46%	Pass
22	2.830	192	3.86E-04	81	1.63E-04	42%	Pass
23	2.929	181	3.64E-04	66	1.33E-04	36%	Pass
24	3.028	169	3.40E-04	59	1.19E-04	35%	Pass
25	3.127	158	3.18E-04	51	1.03E-04	32%	Pass
26	3.227	147	2.96E-04	45	9.05E-05	31%	Pass
27	3.326	139	2.79E-04	38	7.64E-05	27%	Pass
28	3.425	127	2.55E-04	33	6.63E-05	26%	Pass
29	3.524	120	2.41E-04	28	5.63E-05	23%	Pass
30	3.624	114	2.29E-04	26	5.23E-05	23%	Pass
31	3.723	107	2.15E-04	25	5.03E-05	23%	Pass
32	3.822	101	2.03E-04	21	4.22E-05	21%	Pass
33	3.922	95	1.91E-04	19	3.82E-05	20%	Pass
34	4.021	92	1.85E-04	18	3.62E-05	20%	Pass
35	4.120	89	1.79E-04	17	3.42E-05	19%	Pass
36	4.219	87	1.75E-04	15	3.02E-05	17%	Pass
37	4.319	85	1.71E-04	13	2.61E-05	15%	Pass
38	4.418	77	1.55E-04	13	2.61E-05	17%	Pass
39	4.517	74	1.49E-04	13	2.61E-05	18%	Pass
40	4.616	71	1.43E-04	13	2.61E-05	18%	Pass
41	4.716	64	1.29E-04	11	2.21E-05	17%	Pass
42	4.815	62	1.25E-04	11	2.21E-05	18%	Pass
43	4.914	59	1.19E-04	11	2.21E-05	19%	Pass
44	5.014	57	1.15E-04	10	2.01E-05	18%	Pass
45	5.113	56	1.13E-04	10	2.01E-05	18%	Pass
46	5.212	53	1.07E-04	10	2.01E-05	19%	Pass
47	5.311	52	1.05E-04	10	2.01E-05	19%	Pass
48	5.411	49	9.85E-05	9	1.81E-05	18%	Pass
49	5.510	47	9.45E-05	9	1.81E-05	19%	Pass
50	5.609	43	8.65E-05	9	1.81E-05	21%	Pass
51	5.708	42	8.44E-05	7	1.41E-05	17%	Pass
52	5.808	40	8.04E-05	7	1.41E-05	18%	Pass
53	5.907	38	7.64E-05	7	1.41E-05	18%	Pass
54	6.006	37	7.44E-05	7	1.41E-05	19%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
55	6.106	37	7.44E-05	7	1.41E-05	19%	Pass
56	6.205	36	7.24E-05	7	1.41E-05	19%	Pass
57	6.304	34	6.84E-05	7	1.41E-05	21%	Pass
58	6.403	33	6.63E-05	7	1.41E-05	21%	Pass
59	6.503	32	6.43E-05	7	1.41E-05	22%	Pass
60	6.602	32	6.43E-05	7	1.41E-05	22%	Pass
61	6.701	31	6.23E-05	6	1.21E-05	19%	Pass
62	6.800	31	6.23E-05	6	1.21E-05	19%	Pass
63	6.900	30	6.03E-05	6	1.21E-05	20%	Pass
64	6.999	29	5.83E-05	6	1.21E-05	21%	Pass
65	7.098	28	5.63E-05	5	1.01E-05	18%	Pass
66	7.198	27	5.43E-05	5	1.01E-05	19%	Pass
67	7.297	26	5.23E-05	5	1.01E-05	19%	Pass
68	7.396	26	5.23E-05	5	1.01E-05	19%	Pass
69	7.495	22	4.42E-05	4	8.04E-06	18%	Pass
70	7.595	22	4.42E-05	4	8.04E-06	18%	Pass
71	7.694	20	4.02E-05	4	8.04E-06	20%	Pass
72	7.793	20	4.02E-05	3	6.03E-06	15%	Pass
73	7.893	20	4.02E-05	3	6.03E-06	15%	Pass
74	7.992	20	4.02E-05	3	6.03E-06	15%	Pass
75	8.091	20	4.02E-05	3	6.03E-06	15%	Pass
76	8.190	20	4.02E-05	3	6.03E-06	15%	Pass
77	8.290	20	4.02E-05	2	4.02E-06	10%	Pass
78	8.389	16	3.22E-05	2	4.02E-06	13%	Pass
79	8.488	16	3.22E-05	2	4.02E-06	13%	Pass
80	8.587	15	3.02E-05	2	4.02E-06	13%	Pass
81	8.687	14	2.81E-05	2	4.02E-06	14%	Pass
82	8.786	14	2.81E-05	2	4.02E-06	14%	Pass
83	8.885	13	2.61E-05	2	4.02E-06	15%	Pass
84	8.985	12	2.41E-05	2	4.02E-06	17%	Pass
85	9.084	11	2.21E-05	2	4.02E-06	18%	Pass
86	9.183	9	1.81E-05	2	4.02E-06	22%	Pass
87	9.282	9	1.81E-05	2	4.02E-06	22%	Pass
88	9.382	9	1.81E-05	2	4.02E-06	22%	Pass
89	9.481	9	1.81E-05	2	4.02E-06	22%	Pass
90	9.580	9	1.81E-05	2	4.02E-06	22%	Pass
91	9.679	9	1.81E-05	2	4.02E-06	22%	Pass
92	9.779	9	1.81E-05	2	4.02E-06	22%	Pass
93	9.878	8	1.61E-05	2	4.02E-06	25%	Pass
94	9.977	6	1.21E-05	2	4.02E-06	33%	Pass
95	10.077	6	1.21E-05	2	4.02E-06	33%	Pass
96	10.176	5	1.01E-05	2	4.02E-06	40%	Pass
97	10.275	5	1.01E-05	2	4.02E-06	40%	Pass
98	10.374	5	1.01E-05	2	4.02E-06	40%	Pass
99	10.474	5	1.01E-05	2	4.02E-06	40%	Pass
100	10.573	5	1.01E-05	1	2.01E-06	20%	Pass

Flow Duration Curve
[Pre vs. Post (Mitigated)]
POC-A



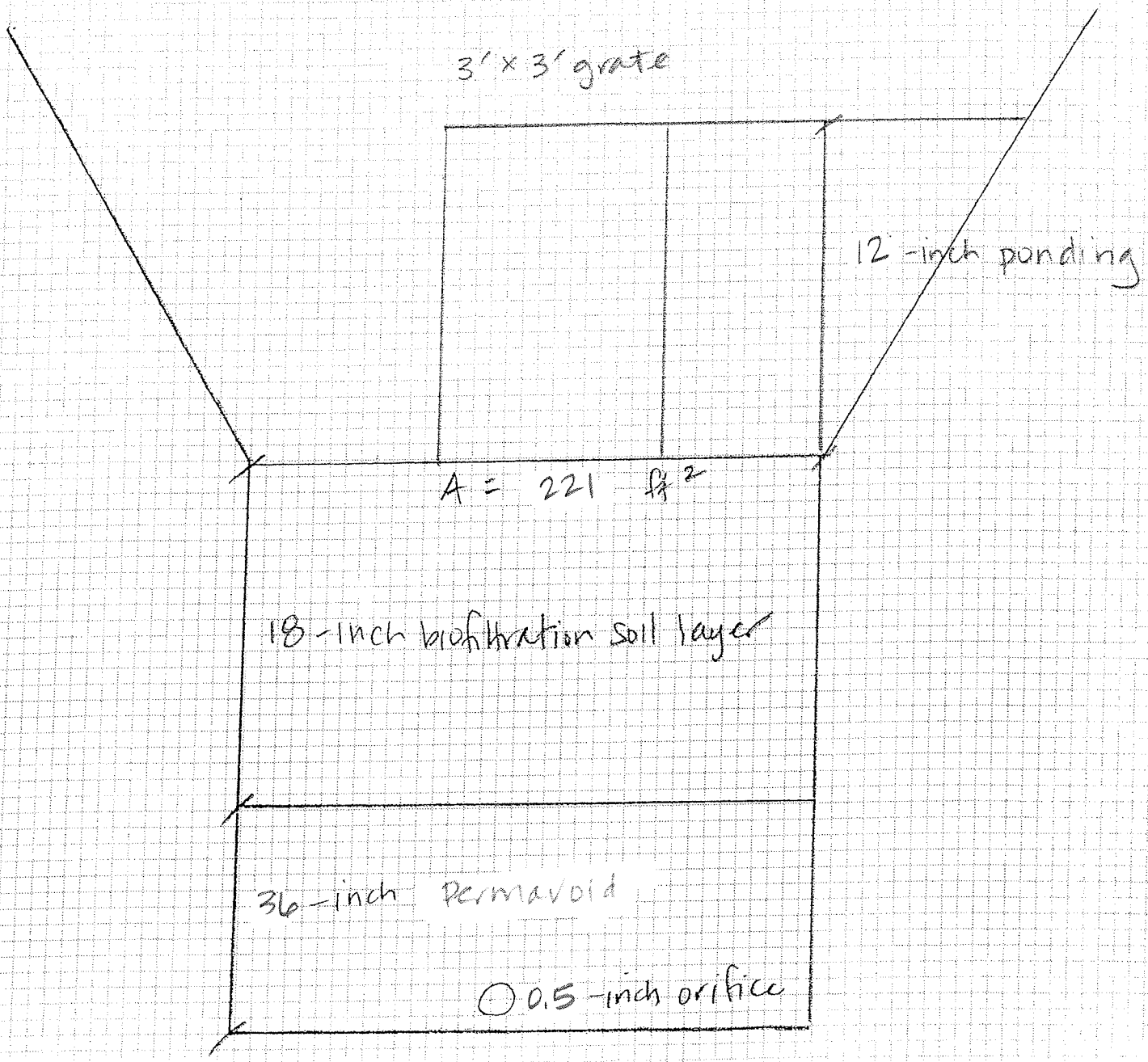
PASCO LARET SUITER & ASSOCIATES

Fox Point

Date 2/26/2020

Job# 3089

HMP Biofiltration Basin BMP-A5



Not to scale

Alt #3

SWMM Model Flow Coefficient Calculation

BMP-A5 PARAMETER	ABBREV.	Bio-Retention Cell LID BMP	
Ponding Depth	PD	12	in
Bioretention Soil Layer	S	18	in
Gravel Layer	G	36	in
TOTAL		5.5	ft
		66	in
Orifice Coefficient	c_g	0.6	--
Low Flow Orifice Diameter	D	0.5	in
Drain exponent	n	0.5	--
Flow Rate (volumetric)	Q	0.015	cfs
Ponding Depth Surface Area	A_{PD}	221	ft^2
Bioretention Surface Area	A_S, A_G	221	ft^2
	A_S, A_G	0.0051	ac
Porosity of Bioretention Soil	n	1.00	-
Flow Rate (per unit area)	q	3.004	in/hr
Effective Ponding Depth	PD_{eff}	**12.00**	in
Flow Coefficient	C	**0.3705**	--

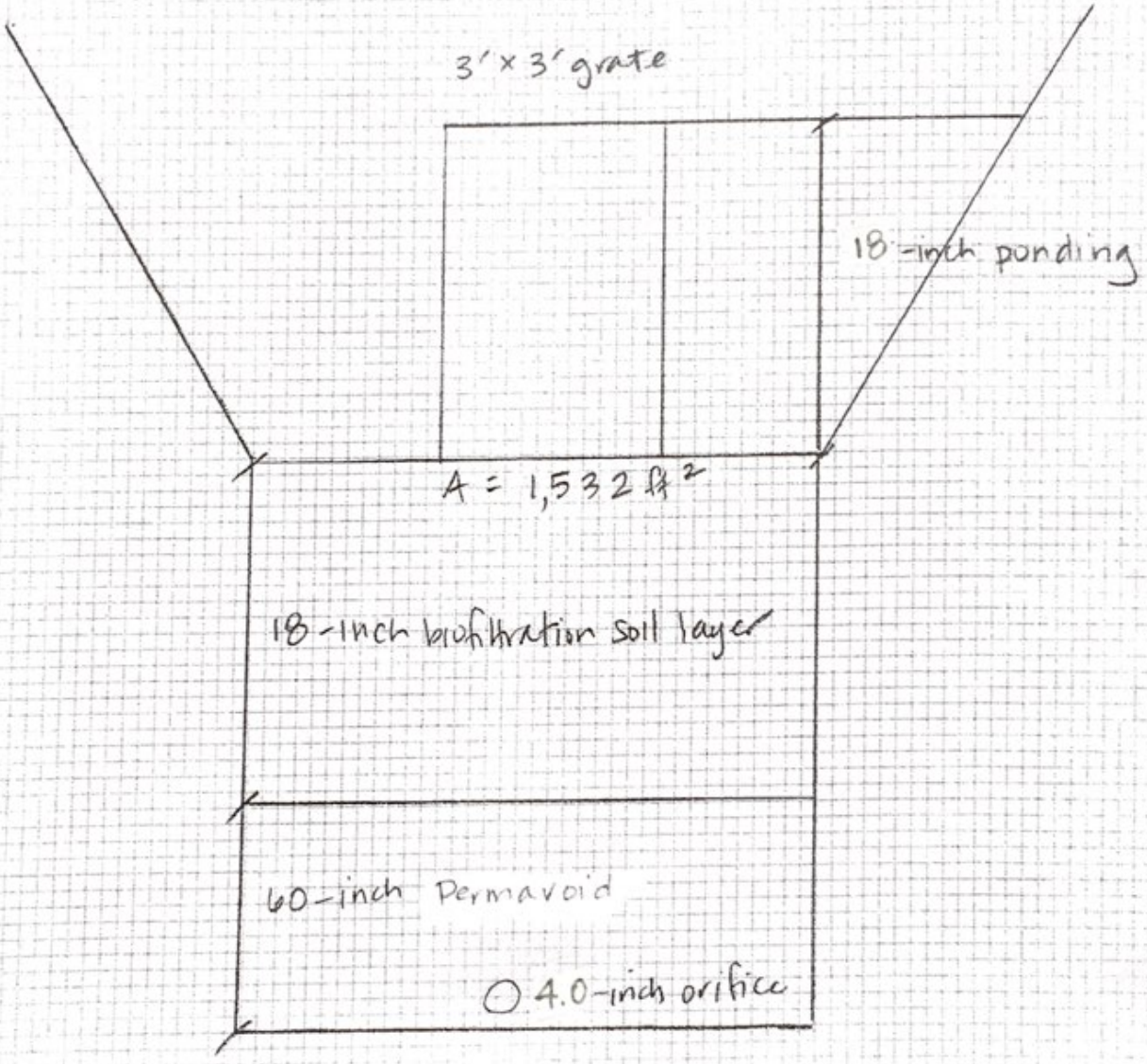
PASCO LARET SUITER & ASSOCIATES

Fox Point

Date 5/8/2020

Job# 3089

HMP Biofiltration Basin BMP-A1



Not to scale

A1+#6

Summary for Pond 4P: BMP-A1 Alt 4

Volume	Invert	Avail.Storage	Storage Description
#1	93.50'	10,801 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
93.50	1,532	0.0	0	0	1,532
98.50	1,532	95.0	7,277	7,277	2,226
100.00	1,532	20.0	460	7,737	2,434
102.00	1,532	100.0	3,064	10,801	2,711

Device	Routing	Invert	Outlet Devices
#1	Primary	93.50'	**18.0" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 93.50' / 92.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	93.50'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	101.50'	**36.0" x 36.0" Horiz. Grate** C= 0.600 in 36.0" x 36.0" Grate (100% open area) Limited to weir flow at low heads

Stage-Discharge for Pond 4P: BMP-A1 Alt 4

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
93.50	0.00	94.54	0.39	95.58	0.58	96.62	0.72
93.52	0.00	94.56	0.40	95.60	0.58	96.64	0.72
93.54	0.00	94.58	0.40	95.62	0.59	96.66	0.73
93.56	0.01	94.60	0.41	95.64	0.59	96.68	0.73
93.58	0.02	94.62	0.41	95.66	0.59	96.70	0.73
93.60	0.02	94.64	0.41	95.68	0.60	96.72	0.73
93.62	0.03	94.66	0.42	95.70	0.60	96.74	0.74
93.64	0.04	94.68	0.42	95.72	0.60	96.76	0.74
93.66	0.06	94.70	0.43	95.74	0.61	96.78	0.74
93.68	0.07	94.72	0.43	95.76	0.61	96.80	0.74
93.70	0.08	94.74	0.44	95.78	0.61	96.82	0.75
93.72	0.10	94.76	0.44	95.80	0.61	96.84	0.75
93.74	0.11	94.78	0.44	95.82	0.62	96.86	0.75
93.76	0.13	94.80	0.45	95.84	0.62	96.88	0.75
93.78	0.14	94.82	0.45	95.86	0.62	96.90	0.76
93.80	0.15	94.84	0.46	95.88	0.63	96.92	0.76
93.82	0.17	94.86	0.46	95.90	0.63	96.94	0.76
93.84	0.17	94.88	0.46	95.92	0.63	96.96	0.76
93.86	0.18	94.90	0.47	95.94	0.63	96.98	0.76
93.88	0.19	94.92	0.47	95.96	0.64	97.00	0.77
93.90	0.20	94.94	0.47	95.98	0.64	97.02	0.77
93.92	0.21	94.96	0.48	96.00	0.64	97.04	0.77
93.94	0.22	94.98	0.48	96.02	0.64	97.06	0.77
93.96	0.23	95.00	0.49	96.04	0.65	97.08	0.78
93.98	0.24	95.02	0.49	96.06	0.65	97.10	0.78
94.00	0.24	95.04	0.49	96.08	0.65	97.12	0.78
94.02	0.25	95.06	0.50	96.10	0.66	97.14	0.78
94.04	0.26	95.08	0.50	96.12	0.66	97.16	0.79
94.06	0.26	95.10	0.50	96.14	0.66	97.18	0.79
94.08	0.27	95.12	0.51	96.16	0.66	97.20	0.79
94.10	0.28	95.14	0.51	96.18	0.67	97.22	0.79
94.12	0.28	95.16	0.51	96.20	0.67	97.24	0.79
94.14	0.29	95.18	0.52	96.22	0.67	97.26	0.80
94.16	0.30	95.20	0.52	96.24	0.67	97.28	0.80
94.18	0.30	95.22	0.52	96.26	0.68	97.30	0.80
94.20	0.31	95.24	0.53	96.28	0.68	97.32	0.80
94.22	0.31	95.26	0.53	96.30	0.68	97.34	0.81
94.24	0.32	95.28	0.53	96.32	0.68	97.36	0.81
94.26	0.32	95.30	0.54	96.34	0.69	97.38	0.81
94.28	0.33	95.32	0.54	96.36	0.69	97.40	0.81
94.30	0.33	95.34	0.54	96.38	0.69	97.42	0.81
94.32	0.34	95.36	0.55	96.40	0.69	97.44	0.82
94.34	0.34	95.38	0.55	96.42	0.70	97.46	0.82
94.36	0.35	95.40	0.55	96.44	0.70	97.48	0.82
94.38	0.35	95.42	0.56	96.46	0.70	97.50	0.82
94.40	0.36	95.44	0.56	96.48	0.70	97.52	0.82
94.42	0.36	95.46	0.56	96.50	0.71	97.54	0.83
94.44	0.37	95.48	0.57	96.52	0.71	97.56	0.83
94.46	0.37	95.50	0.57	96.54	0.71	97.58	0.83
94.48	0.38	95.52	0.57	96.56	0.71	97.60	0.83
94.50	0.38	95.54	0.58	96.58	0.72	97.62	0.84
94.52	0.39	95.56	0.58	96.60	0.72	97.64	0.84

Stage-Discharge for Pond 4P: BMP-A1 Alt 4 (continued)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
97.66	0.84	98.70	0.94	99.74	1.04	100.78	1.12
97.68	0.84	98.72	0.94	99.76	1.04	100.80	1.12
97.70	0.84	98.74	0.95	99.78	1.04	100.82	1.12
97.72	0.85	98.76	0.95	99.80	1.04	100.84	1.13
97.74	0.85	98.78	0.95	99.82	1.04	100.86	1.13
97.76	0.85	98.80	0.95	99.84	1.04	100.88	1.13
97.78	0.85	98.82	0.95	99.86	1.05	100.90	1.13
97.80	0.85	98.84	0.96	99.88	1.05	100.92	1.13
97.82	0.86	98.86	0.96	99.90	1.05	100.94	1.13
97.84	0.86	98.88	0.96	99.92	1.05	100.96	1.13
97.86	0.86	98.90	0.96	99.94	1.05	100.98	1.14
97.88	0.86	98.92	0.96	99.96	1.05	101.00	1.14
97.90	0.86	98.94	0.96	99.98	1.06	101.02	1.14
97.92	0.87	98.96	0.97	100.00	1.06	101.04	1.14
97.94	0.87	98.98	0.97	100.02	1.06	101.06	1.14
97.96	0.87	99.00	0.97	100.04	1.06	101.08	1.14
97.98	0.87	99.02	0.97	100.06	1.06	101.10	1.15
98.00	0.87	99.04	0.97	100.08	1.06	101.12	1.15
98.02	0.88	99.06	0.98	100.10	1.07	101.14	1.15
98.04	0.88	99.08	0.98	100.12	1.07	101.16	1.15
98.06	0.88	99.10	0.98	100.14	1.07	101.18	1.15
98.08	0.88	99.12	0.98	100.16	1.07	101.20	1.15
98.10	0.88	99.14	0.98	100.18	1.07	101.22	1.15
98.12	0.89	99.16	0.98	100.20	1.07	101.24	1.16
98.14	0.89	99.18	0.99	100.22	1.08	101.26	1.16
98.16	0.89	99.20	0.99	100.24	1.08	101.28	1.16
98.18	0.89	99.22	0.99	100.26	1.08	101.30	1.16
98.20	0.89	99.24	0.99	100.28	1.08	101.32	1.16
98.22	0.90	99.26	0.99	100.30	1.08	101.34	1.16
98.24	0.90	99.28	1.00	100.32	1.08	101.36	1.17
98.26	0.90	99.30	1.00	100.34	1.09	101.38	1.17
98.28	0.90	99.32	1.00	100.36	1.09	101.40	1.17
98.30	0.90	99.34	1.00	100.38	1.09	101.42	1.17
98.32	0.91	99.36	1.00	100.40	1.09	101.44	1.17
98.34	0.91	99.38	1.00	100.42	1.09	101.46	1.17
98.36	0.91	99.40	1.01	100.44	1.09	101.48	1.17
98.38	0.91	99.42	1.01	100.46	1.10	101.50	1.18
98.40	0.91	99.44	1.01	100.48	1.10	101.52	1.29
98.42	0.92	99.46	1.01	100.50	1.10	101.54	1.49
98.44	0.92	99.48	1.01	100.52	1.10	101.56	1.76
98.46	0.92	99.50	1.01	100.54	1.10	101.58	2.07
98.48	0.92	99.52	1.02	100.56	1.10	101.60	2.42
98.50	0.92	99.54	1.02	100.58	1.10	101.62	2.82
98.52	0.93	99.56	1.02	100.60	1.11	101.64	3.24
98.54	0.93	99.58	1.02	100.62	1.11	101.66	3.70
98.56	0.93	99.60	1.02	100.64	1.11	101.68	4.19
98.58	0.93	99.62	1.03	100.66	1.11	101.70	4.70
98.60	0.93	99.64	1.03	100.68	1.11	101.72	5.24
98.62	0.94	99.66	1.03	100.70	1.11	101.74	5.81
98.64	0.94	99.68	1.03	100.72	1.12	101.76	6.40
98.66	0.94	99.70	1.03	100.74	1.12	101.78	7.01
98.68	0.94	99.72	1.03	100.76	1.12	101.80	7.65

Stage-Discharge for Pond 4P: BMP-A1 Alt 4 (continued)

Elevation (feet)	Primary (cfs)
101.82	8.30
101.84	8.98
101.86	9.68
101.88	10.40
101.90	11.13
101.92	11.89
101.94	12.66
101.96	13.45
101.98	14.26
102.00	**15.09**

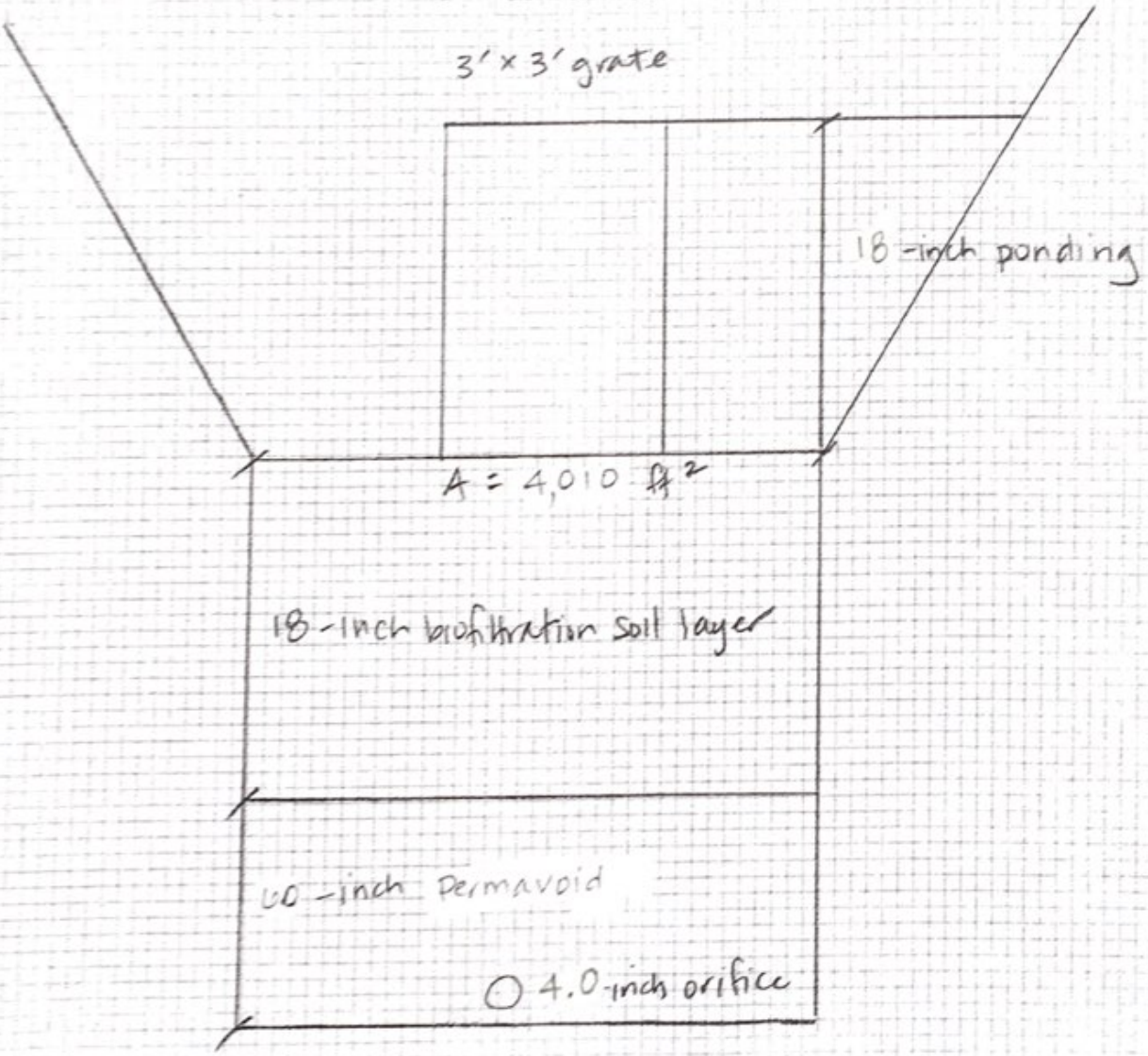
PASCO LARET SUITER & ASSOCIATES

Fox Point

Date 5/8/2020

Job# 3084

HMP Biofiltration Basin BMP-A2



Not to scale

Alt #6

Summary for Pond 16P: BMP-A2 Alt 4

Volume	Invert	Avail.Storage	Storage Description
#1	93.50'	28,271 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
93.50	4,010	0.0	0	0	4,010
98.50	4,010	95.0	19,048	19,048	5,132
100.00	4,010	20.0	1,203	20,251	5,469
102.00	4,010	100.0	8,020	28,271	5,918

Device	Routing	Invert	Outlet Devices
#1	Primary	93.50'	**18.0" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 93.50' / 92.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	93.50'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	101.50'	**36.0" x 36.0" Horiz. Grate** C= 0.600 in 36.0" x 36.0" Grate (100% open area) Limited to weir flow at low heads

Stage-Discharge for Pond 16P: BMP-A2 Alt 4

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
93.50	0.00	94.54	0.39	95.58	0.58	96.62	0.72
93.52	0.00	94.56	0.40	95.60	0.58	96.64	0.72
93.54	0.00	94.58	0.40	95.62	0.59	96.66	0.73
93.56	0.01	94.60	0.41	95.64	0.59	96.68	0.73
93.58	0.02	94.62	0.41	95.66	0.59	96.70	0.73
93.60	0.02	94.64	0.41	95.68	0.60	96.72	0.73
93.62	0.03	94.66	0.42	95.70	0.60	96.74	0.74
93.64	0.04	94.68	0.42	95.72	0.60	96.76	0.74
93.66	0.06	94.70	0.43	95.74	0.61	96.78	0.74
93.68	0.07	94.72	0.43	95.76	0.61	96.80	0.74
93.70	0.08	94.74	0.44	95.78	0.61	96.82	0.75
93.72	0.10	94.76	0.44	95.80	0.61	96.84	0.75
93.74	0.11	94.78	0.44	95.82	0.62	96.86	0.75
93.76	0.13	94.80	0.45	95.84	0.62	96.88	0.75
93.78	0.14	94.82	0.45	95.86	0.62	96.90	0.76
93.80	0.15	94.84	0.46	95.88	0.63	96.92	0.76
93.82	0.17	94.86	0.46	95.90	0.63	96.94	0.76
93.84	0.17	94.88	0.46	95.92	0.63	96.96	0.76
93.86	0.18	94.90	0.47	95.94	0.63	96.98	0.76
93.88	0.19	94.92	0.47	95.96	0.64	97.00	0.77
93.90	0.20	94.94	0.47	95.98	0.64	97.02	0.77
93.92	0.21	94.96	0.48	96.00	0.64	97.04	0.77
93.94	0.22	94.98	0.48	96.02	0.64	97.06	0.77
93.96	0.23	95.00	0.49	96.04	0.65	97.08	0.78
93.98	0.24	95.02	0.49	96.06	0.65	97.10	0.78
94.00	0.24	95.04	0.49	96.08	0.65	97.12	0.78
94.02	0.25	95.06	0.50	96.10	0.66	97.14	0.78
94.04	0.26	95.08	0.50	96.12	0.66	97.16	0.79
94.06	0.26	95.10	0.50	96.14	0.66	97.18	0.79
94.08	0.27	95.12	0.51	96.16	0.66	97.20	0.79
94.10	0.28	95.14	0.51	96.18	0.67	97.22	0.79
94.12	0.28	95.16	0.51	96.20	0.67	97.24	0.79
94.14	0.29	95.18	0.52	96.22	0.67	97.26	0.80
94.16	0.30	95.20	0.52	96.24	0.67	97.28	0.80
94.18	0.30	95.22	0.52	96.26	0.68	97.30	0.80
94.20	0.31	95.24	0.53	96.28	0.68	97.32	0.80
94.22	0.31	95.26	0.53	96.30	0.68	97.34	0.81
94.24	0.32	95.28	0.53	96.32	0.68	97.36	0.81
94.26	0.32	95.30	0.54	96.34	0.69	97.38	0.81
94.28	0.33	95.32	0.54	96.36	0.69	97.40	0.81
94.30	0.33	95.34	0.54	96.38	0.69	97.42	0.81
94.32	0.34	95.36	0.55	96.40	0.69	97.44	0.82
94.34	0.34	95.38	0.55	96.42	0.70	97.46	0.82
94.36	0.35	95.40	0.55	96.44	0.70	97.48	0.82
94.38	0.35	95.42	0.56	96.46	0.70	97.50	0.82
94.40	0.36	95.44	0.56	96.48	0.70	97.52	0.82
94.42	0.36	95.46	0.56	96.50	0.71	97.54	0.83
94.44	0.37	95.48	0.57	96.52	0.71	97.56	0.83
94.46	0.37	95.50	0.57	96.54	0.71	97.58	0.83
94.48	0.38	95.52	0.57	96.56	0.71	97.60	0.83
94.50	0.38	95.54	0.58	96.58	0.72	97.62	0.84
94.52	0.39	95.56	0.58	96.60	0.72	97.64	0.84

Stage-Discharge for Pond 16P: BMP-A2 Alt 4 (continued)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
97.66	0.84	98.70	0.94	99.74	1.04	100.78	1.12
97.68	0.84	98.72	0.94	99.76	1.04	100.80	1.12
97.70	0.84	98.74	0.95	99.78	1.04	100.82	1.12
97.72	0.85	98.76	0.95	99.80	1.04	100.84	1.13
97.74	0.85	98.78	0.95	99.82	1.04	100.86	1.13
97.76	0.85	98.80	0.95	99.84	1.04	100.88	1.13
97.78	0.85	98.82	0.95	99.86	1.05	100.90	1.13
97.80	0.85	98.84	0.96	99.88	1.05	100.92	1.13
97.82	0.86	98.86	0.96	99.90	1.05	100.94	1.13
97.84	0.86	98.88	0.96	99.92	1.05	100.96	1.13
97.86	0.86	98.90	0.96	99.94	1.05	100.98	1.14
97.88	0.86	98.92	0.96	99.96	1.05	101.00	1.14
97.90	0.86	98.94	0.96	99.98	1.06	101.02	1.14
97.92	0.87	98.96	0.97	100.00	1.06	101.04	1.14
97.94	0.87	98.98	0.97	100.02	1.06	101.06	1.14
97.96	0.87	99.00	0.97	100.04	1.06	101.08	1.14
97.98	0.87	99.02	0.97	100.06	1.06	101.10	1.15
98.00	0.87	99.04	0.97	100.08	1.06	101.12	1.15
98.02	0.88	99.06	0.98	100.10	1.07	101.14	1.15
98.04	0.88	99.08	0.98	100.12	1.07	101.16	1.15
98.06	0.88	99.10	0.98	100.14	1.07	101.18	1.15
98.08	0.88	99.12	0.98	100.16	1.07	101.20	1.15
98.10	0.88	99.14	0.98	100.18	1.07	101.22	1.15
98.12	0.89	99.16	0.98	100.20	1.07	101.24	1.16
98.14	0.89	99.18	0.99	100.22	1.08	101.26	1.16
98.16	0.89	99.20	0.99	100.24	1.08	101.28	1.16
98.18	0.89	99.22	0.99	100.26	1.08	101.30	1.16
98.20	0.89	99.24	0.99	100.28	1.08	101.32	1.16
98.22	0.90	99.26	0.99	100.30	1.08	101.34	1.16
98.24	0.90	99.28	1.00	100.32	1.08	101.36	1.17
98.26	0.90	99.30	1.00	100.34	1.09	101.38	1.17
98.28	0.90	99.32	1.00	100.36	1.09	101.40	1.17
98.30	0.90	99.34	1.00	100.38	1.09	101.42	1.17
98.32	0.91	99.36	1.00	100.40	1.09	101.44	1.17
98.34	0.91	99.38	1.00	100.42	1.09	101.46	1.17
98.36	0.91	99.40	1.01	100.44	1.09	101.48	1.17
98.38	0.91	99.42	1.01	100.46	1.10	101.50	1.18
98.40	0.91	99.44	1.01	100.48	1.10	101.52	1.29
98.42	0.92	99.46	1.01	100.50	1.10	101.54	1.49
98.44	0.92	99.48	1.01	100.52	1.10	101.56	1.76
98.46	0.92	99.50	1.01	100.54	1.10	101.58	2.07
98.48	0.92	99.52	1.02	100.56	1.10	101.60	2.42
98.50	0.92	99.54	1.02	100.58	1.10	101.62	2.82
98.52	0.93	99.56	1.02	100.60	1.11	101.64	3.24
98.54	0.93	99.58	1.02	100.62	1.11	101.66	3.70
98.56	0.93	99.60	1.02	100.64	1.11	101.68	4.19
98.58	0.93	99.62	1.03	100.66	1.11	101.70	4.70
98.60	0.93	99.64	1.03	100.68	1.11	101.72	5.24
98.62	0.94	99.66	1.03	100.70	1.11	101.74	5.81
98.64	0.94	99.68	1.03	100.72	1.12	101.76	6.40
98.66	0.94	99.70	1.03	100.74	1.12	101.78	7.01
98.68	0.94	99.72	1.03	100.76	1.12	101.80	7.65

Stage-Discharge for Pond 16P: BMP-A2 Alt 4 (continued)

Elevation (feet)	Primary (cfs)
101.82	8.30
101.84	8.98
101.86	9.68
101.88	10.40
101.90	11.13
101.92	11.89
101.94	12.66
101.96	13.45
101.98	14.26
102.00	**15.09**

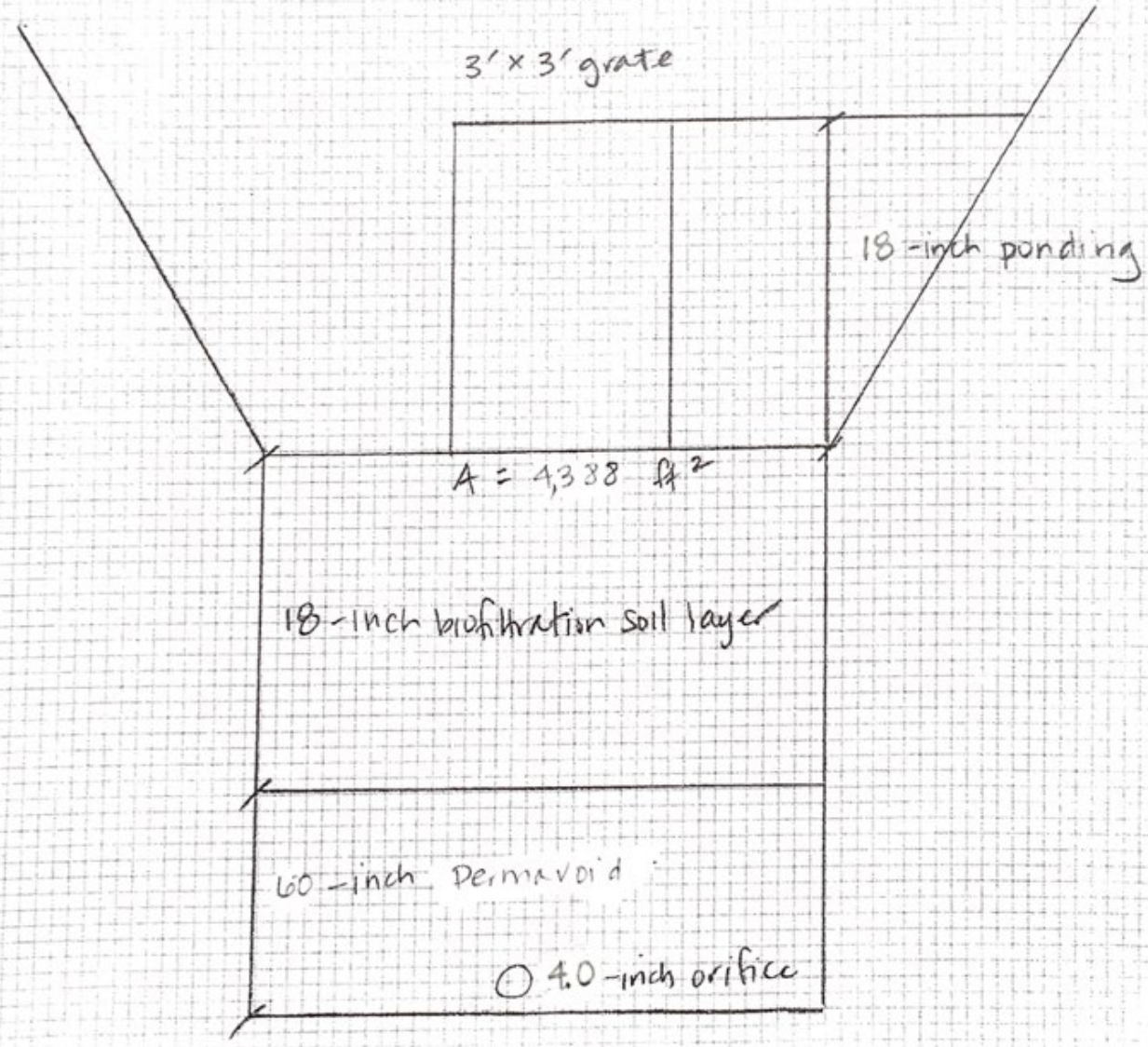
PASCO LARET SUITER & ASSOCIATES

Fox Point

Date 5/8/2020

Job# 3084

HMP Biofiltration Basin BMP-A3



Not to scale

Alt #6

Summary for Pond 17P: BMP-A3 Alt 4

Volume	Invert	Avail.Storage	Storage Description
#1	93.50'	30,935 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
93.50	4,388	0.0	0	0	4,388
98.50	4,388	95.0	20,843	20,843	5,562
100.00	4,388	20.0	1,316	22,159	5,914
102.00	4,388	100.0	8,776	30,935	6,384

Device	Routing	Invert	Outlet Devices
#1	Primary	93.50'	**18.0" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 93.50' / 92.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	93.50'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	101.50'	**36.0" x 36.0" Horiz. Grate** C= 0.600 in 36.0" x 36.0" Grate (100% open area) Limited to weir flow at low heads

Stage-Discharge for Pond 17P: BMP-A3 Alt 4

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
93.50	0.00	94.54	0.39	95.58	0.58	96.62	0.72
93.52	0.00	94.56	0.40	95.60	0.58	96.64	0.72
93.54	0.00	94.58	0.40	95.62	0.59	96.66	0.73
93.56	0.01	94.60	0.41	95.64	0.59	96.68	0.73
93.58	0.02	94.62	0.41	95.66	0.59	96.70	0.73
93.60	0.02	94.64	0.41	95.68	0.60	96.72	0.73
93.62	0.03	94.66	0.42	95.70	0.60	96.74	0.74
93.64	0.04	94.68	0.42	95.72	0.60	96.76	0.74
93.66	0.06	94.70	0.43	95.74	0.61	96.78	0.74
93.68	0.07	94.72	0.43	95.76	0.61	96.80	0.74
93.70	0.08	94.74	0.44	95.78	0.61	96.82	0.75
93.72	0.10	94.76	0.44	95.80	0.61	96.84	0.75
93.74	0.11	94.78	0.44	95.82	0.62	96.86	0.75
93.76	0.13	94.80	0.45	95.84	0.62	96.88	0.75
93.78	0.14	94.82	0.45	95.86	0.62	96.90	0.76
93.80	0.15	94.84	0.46	95.88	0.63	96.92	0.76
93.82	0.17	94.86	0.46	95.90	0.63	96.94	0.76
93.84	0.17	94.88	0.46	95.92	0.63	96.96	0.76
93.86	0.18	94.90	0.47	95.94	0.63	96.98	0.76
93.88	0.19	94.92	0.47	95.96	0.64	97.00	0.77
93.90	0.20	94.94	0.47	95.98	0.64	97.02	0.77
93.92	0.21	94.96	0.48	96.00	0.64	97.04	0.77
93.94	0.22	94.98	0.48	96.02	0.64	97.06	0.77
93.96	0.23	95.00	0.49	96.04	0.65	97.08	0.78
93.98	0.24	95.02	0.49	96.06	0.65	97.10	0.78
94.00	0.24	95.04	0.49	96.08	0.65	97.12	0.78
94.02	0.25	95.06	0.50	96.10	0.66	97.14	0.78
94.04	0.26	95.08	0.50	96.12	0.66	97.16	0.79
94.06	0.26	95.10	0.50	96.14	0.66	97.18	0.79
94.08	0.27	95.12	0.51	96.16	0.66	97.20	0.79
94.10	0.28	95.14	0.51	96.18	0.67	97.22	0.79
94.12	0.28	95.16	0.51	96.20	0.67	97.24	0.79
94.14	0.29	95.18	0.52	96.22	0.67	97.26	0.80
94.16	0.30	95.20	0.52	96.24	0.67	97.28	0.80
94.18	0.30	95.22	0.52	96.26	0.68	97.30	0.80
94.20	0.31	95.24	0.53	96.28	0.68	97.32	0.80
94.22	0.31	95.26	0.53	96.30	0.68	97.34	0.81
94.24	0.32	95.28	0.53	96.32	0.68	97.36	0.81
94.26	0.32	95.30	0.54	96.34	0.69	97.38	0.81
94.28	0.33	95.32	0.54	96.36	0.69	97.40	0.81
94.30	0.33	95.34	0.54	96.38	0.69	97.42	0.81
94.32	0.34	95.36	0.55	96.40	0.69	97.44	0.82
94.34	0.34	95.38	0.55	96.42	0.70	97.46	0.82
94.36	0.35	95.40	0.55	96.44	0.70	97.48	0.82
94.38	0.35	95.42	0.56	96.46	0.70	97.50	0.82
94.40	0.36	95.44	0.56	96.48	0.70	97.52	0.82
94.42	0.36	95.46	0.56	96.50	0.71	97.54	0.83
94.44	0.37	95.48	0.57	96.52	0.71	97.56	0.83
94.46	0.37	95.50	0.57	96.54	0.71	97.58	0.83
94.48	0.38	95.52	0.57	96.56	0.71	97.60	0.83
94.50	0.38	95.54	0.58	96.58	0.72	97.62	0.84
94.52	0.39	95.56	0.58	96.60	0.72	97.64	0.84

Stage-Discharge for Pond 17P: BMP-A3 Alt 4 (continued)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
97.66	0.84	98.70	0.94	99.74	1.04	100.78	1.12
97.68	0.84	98.72	0.94	99.76	1.04	100.80	1.12
97.70	0.84	98.74	0.95	99.78	1.04	100.82	1.12
97.72	0.85	98.76	0.95	99.80	1.04	100.84	1.13
97.74	0.85	98.78	0.95	99.82	1.04	100.86	1.13
97.76	0.85	98.80	0.95	99.84	1.04	100.88	1.13
97.78	0.85	98.82	0.95	99.86	1.05	100.90	1.13
97.80	0.85	98.84	0.96	99.88	1.05	100.92	1.13
97.82	0.86	98.86	0.96	99.90	1.05	100.94	1.13
97.84	0.86	98.88	0.96	99.92	1.05	100.96	1.13
97.86	0.86	98.90	0.96	99.94	1.05	100.98	1.14
97.88	0.86	98.92	0.96	99.96	1.05	101.00	1.14
97.90	0.86	98.94	0.96	99.98	1.06	101.02	1.14
97.92	0.87	98.96	0.97	100.00	1.06	101.04	1.14
97.94	0.87	98.98	0.97	100.02	1.06	101.06	1.14
97.96	0.87	99.00	0.97	100.04	1.06	101.08	1.14
97.98	0.87	99.02	0.97	100.06	1.06	101.10	1.15
98.00	0.87	99.04	0.97	100.08	1.06	101.12	1.15
98.02	0.88	99.06	0.98	100.10	1.07	101.14	1.15
98.04	0.88	99.08	0.98	100.12	1.07	101.16	1.15
98.06	0.88	99.10	0.98	100.14	1.07	101.18	1.15
98.08	0.88	99.12	0.98	100.16	1.07	101.20	1.15
98.10	0.88	99.14	0.98	100.18	1.07	101.22	1.15
98.12	0.89	99.16	0.98	100.20	1.07	101.24	1.16
98.14	0.89	99.18	0.99	100.22	1.08	101.26	1.16
98.16	0.89	99.20	0.99	100.24	1.08	101.28	1.16
98.18	0.89	99.22	0.99	100.26	1.08	101.30	1.16
98.20	0.89	99.24	0.99	100.28	1.08	101.32	1.16
98.22	0.90	99.26	0.99	100.30	1.08	101.34	1.16
98.24	0.90	99.28	1.00	100.32	1.08	101.36	1.17
98.26	0.90	99.30	1.00	100.34	1.09	101.38	1.17
98.28	0.90	99.32	1.00	100.36	1.09	101.40	1.17
98.30	0.90	99.34	1.00	100.38	1.09	101.42	1.17
98.32	0.91	99.36	1.00	100.40	1.09	101.44	1.17
98.34	0.91	99.38	1.00	100.42	1.09	101.46	1.17
98.36	0.91	99.40	1.01	100.44	1.09	101.48	1.17
98.38	0.91	99.42	1.01	100.46	1.10	101.50	1.18
98.40	0.91	99.44	1.01	100.48	1.10	101.52	1.29
98.42	0.92	99.46	1.01	100.50	1.10	101.54	1.49
98.44	0.92	99.48	1.01	100.52	1.10	101.56	1.76
98.46	0.92	99.50	1.01	100.54	1.10	101.58	2.07
98.48	0.92	99.52	1.02	100.56	1.10	101.60	2.42
98.50	0.92	99.54	1.02	100.58	1.10	101.62	2.82
98.52	0.93	99.56	1.02	100.60	1.11	101.64	3.24
98.54	0.93	99.58	1.02	100.62	1.11	101.66	3.70
98.56	0.93	99.60	1.02	100.64	1.11	101.68	4.19
98.58	0.93	99.62	1.03	100.66	1.11	101.70	4.70
98.60	0.93	99.64	1.03	100.68	1.11	101.72	5.24
98.62	0.94	99.66	1.03	100.70	1.11	101.74	5.81
98.64	0.94	99.68	1.03	100.72	1.12	101.76	6.40
98.66	0.94	99.70	1.03	100.74	1.12	101.78	7.01
98.68	0.94	99.72	1.03	100.76	1.12	101.80	7.65

Stage-Discharge for Pond 17P: BMP-A3 Alt 4 (continued)

Elevation (feet)	Primary (cfs)
101.82	8.30
101.84	8.98
101.86	9.68
101.88	10.40
101.90	11.13
101.92	11.89
101.94	12.66
101.96	13.45
101.98	14.26
102.00	**15.09**

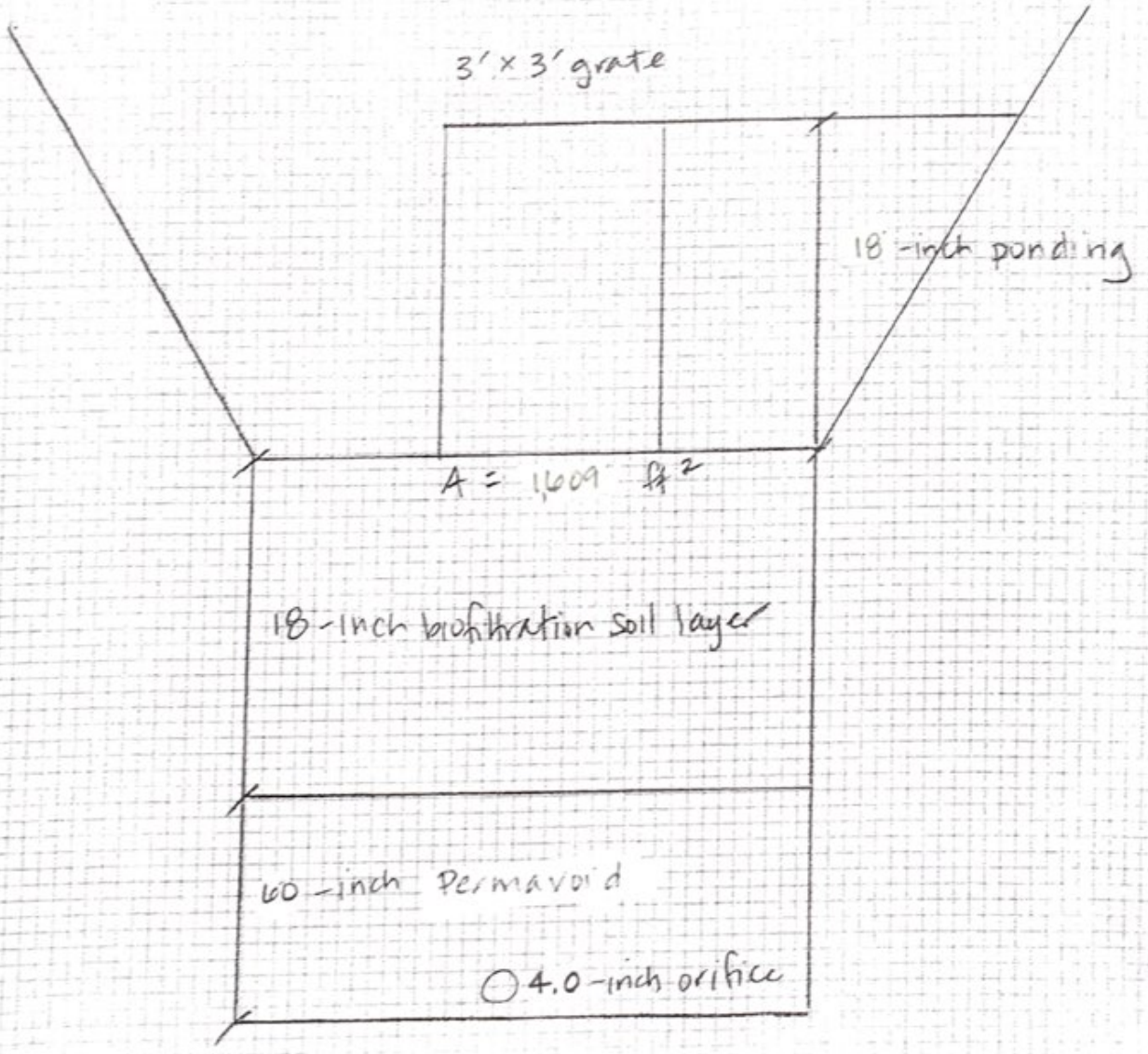
PASCO LARET SUITER
& ASSOCIATES

Fox Point

Date 5/8/2020

Job# 3029

HMP Biofiltration Basin BMP-A4



Not to scale

A1+ #6

Summary for Pond 18P: BMP-A4 Alt 4

Volume	Invert	Avail.Storage	Storage Description
#1	93.50'	11,343 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
93.50	1,609	0.0	0	0	1,609
98.50	1,609	95.0	7,643	7,643	2,320
100.00	1,609	20.0	483	8,125	2,533
102.00	1,609	100.0	3,218	11,343	2,818

Device	Routing	Invert	Outlet Devices
#1	Primary	93.50'	**18.0" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 93.50' / 92.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	93.50'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	101.50'	**36.0" x 36.0" Horiz. Grate** C= 0.600 in 36.0" x 36.0" Grate (100% open area) Limited to weir flow at low heads

Stage-Discharge for Pond 18P: BMP-A4 Alt 4

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
93.50	0.00	94.54	0.39	95.58	0.58	96.62	0.72
93.52	0.00	94.56	0.40	95.60	0.58	96.64	0.72
93.54	0.00	94.58	0.40	95.62	0.59	96.66	0.73
93.56	0.01	94.60	0.41	95.64	0.59	96.68	0.73
93.58	0.02	94.62	0.41	95.66	0.59	96.70	0.73
93.60	0.02	94.64	0.41	95.68	0.60	96.72	0.73
93.62	0.03	94.66	0.42	95.70	0.60	96.74	0.74
93.64	0.04	94.68	0.42	95.72	0.60	96.76	0.74
93.66	0.06	94.70	0.43	95.74	0.61	96.78	0.74
93.68	0.07	94.72	0.43	95.76	0.61	96.80	0.74
93.70	0.08	94.74	0.44	95.78	0.61	96.82	0.75
93.72	0.10	94.76	0.44	95.80	0.61	96.84	0.75
93.74	0.11	94.78	0.44	95.82	0.62	96.86	0.75
93.76	0.13	94.80	0.45	95.84	0.62	96.88	0.75
93.78	0.14	94.82	0.45	95.86	0.62	96.90	0.76
93.80	0.15	94.84	0.46	95.88	0.63	96.92	0.76
93.82	0.17	94.86	0.46	95.90	0.63	96.94	0.76
93.84	0.17	94.88	0.46	95.92	0.63	96.96	0.76
93.86	0.18	94.90	0.47	95.94	0.63	96.98	0.76
93.88	0.19	94.92	0.47	95.96	0.64	97.00	0.77
93.90	0.20	94.94	0.47	95.98	0.64	97.02	0.77
93.92	0.21	94.96	0.48	96.00	0.64	97.04	0.77
93.94	0.22	94.98	0.48	96.02	0.64	97.06	0.77
93.96	0.23	95.00	0.49	96.04	0.65	97.08	0.78
93.98	0.24	95.02	0.49	96.06	0.65	97.10	0.78
94.00	0.24	95.04	0.49	96.08	0.65	97.12	0.78
94.02	0.25	95.06	0.50	96.10	0.66	97.14	0.78
94.04	0.26	95.08	0.50	96.12	0.66	97.16	0.79
94.06	0.26	95.10	0.50	96.14	0.66	97.18	0.79
94.08	0.27	95.12	0.51	96.16	0.66	97.20	0.79
94.10	0.28	95.14	0.51	96.18	0.67	97.22	0.79
94.12	0.28	95.16	0.51	96.20	0.67	97.24	0.79
94.14	0.29	95.18	0.52	96.22	0.67	97.26	0.80
94.16	0.30	95.20	0.52	96.24	0.67	97.28	0.80
94.18	0.30	95.22	0.52	96.26	0.68	97.30	0.80
94.20	0.31	95.24	0.53	96.28	0.68	97.32	0.80
94.22	0.31	95.26	0.53	96.30	0.68	97.34	0.81
94.24	0.32	95.28	0.53	96.32	0.68	97.36	0.81
94.26	0.32	95.30	0.54	96.34	0.69	97.38	0.81
94.28	0.33	95.32	0.54	96.36	0.69	97.40	0.81
94.30	0.33	95.34	0.54	96.38	0.69	97.42	0.81
94.32	0.34	95.36	0.55	96.40	0.69	97.44	0.82
94.34	0.34	95.38	0.55	96.42	0.70	97.46	0.82
94.36	0.35	95.40	0.55	96.44	0.70	97.48	0.82
94.38	0.35	95.42	0.56	96.46	0.70	97.50	0.82
94.40	0.36	95.44	0.56	96.48	0.70	97.52	0.82
94.42	0.36	95.46	0.56	96.50	0.71	97.54	0.83
94.44	0.37	95.48	0.57	96.52	0.71	97.56	0.83
94.46	0.37	95.50	0.57	96.54	0.71	97.58	0.83
94.48	0.38	95.52	0.57	96.56	0.71	97.60	0.83
94.50	0.38	95.54	0.58	96.58	0.72	97.62	0.84
94.52	0.39	95.56	0.58	96.60	0.72	97.64	0.84

Stage-Discharge for Pond 18P: BMP-A4 Alt 4 (continued)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
97.66	0.84	98.70	0.94	99.74	1.04	100.78	1.12
97.68	0.84	98.72	0.94	99.76	1.04	100.80	1.12
97.70	0.84	98.74	0.95	99.78	1.04	100.82	1.12
97.72	0.85	98.76	0.95	99.80	1.04	100.84	1.13
97.74	0.85	98.78	0.95	99.82	1.04	100.86	1.13
97.76	0.85	98.80	0.95	99.84	1.04	100.88	1.13
97.78	0.85	98.82	0.95	99.86	1.05	100.90	1.13
97.80	0.85	98.84	0.96	99.88	1.05	100.92	1.13
97.82	0.86	98.86	0.96	99.90	1.05	100.94	1.13
97.84	0.86	98.88	0.96	99.92	1.05	100.96	1.13
97.86	0.86	98.90	0.96	99.94	1.05	100.98	1.14
97.88	0.86	98.92	0.96	99.96	1.05	101.00	1.14
97.90	0.86	98.94	0.96	99.98	1.06	101.02	1.14
97.92	0.87	98.96	0.97	100.00	1.06	101.04	1.14
97.94	0.87	98.98	0.97	100.02	1.06	101.06	1.14
97.96	0.87	99.00	0.97	100.04	1.06	101.08	1.14
97.98	0.87	99.02	0.97	100.06	1.06	101.10	1.15
98.00	0.87	99.04	0.97	100.08	1.06	101.12	1.15
98.02	0.88	99.06	0.98	100.10	1.07	101.14	1.15
98.04	0.88	99.08	0.98	100.12	1.07	101.16	1.15
98.06	0.88	99.10	0.98	100.14	1.07	101.18	1.15
98.08	0.88	99.12	0.98	100.16	1.07	101.20	1.15
98.10	0.88	99.14	0.98	100.18	1.07	101.22	1.15
98.12	0.89	99.16	0.98	100.20	1.07	101.24	1.16
98.14	0.89	99.18	0.99	100.22	1.08	101.26	1.16
98.16	0.89	99.20	0.99	100.24	1.08	101.28	1.16
98.18	0.89	99.22	0.99	100.26	1.08	101.30	1.16
98.20	0.89	99.24	0.99	100.28	1.08	101.32	1.16
98.22	0.90	99.26	0.99	100.30	1.08	101.34	1.16
98.24	0.90	99.28	1.00	100.32	1.08	101.36	1.17
98.26	0.90	99.30	1.00	100.34	1.09	101.38	1.17
98.28	0.90	99.32	1.00	100.36	1.09	101.40	1.17
98.30	0.90	99.34	1.00	100.38	1.09	101.42	1.17
98.32	0.91	99.36	1.00	100.40	1.09	101.44	1.17
98.34	0.91	99.38	1.00	100.42	1.09	101.46	1.17
98.36	0.91	99.40	1.01	100.44	1.09	101.48	1.17
98.38	0.91	99.42	1.01	100.46	1.10	101.50	1.18
98.40	0.91	99.44	1.01	100.48	1.10	101.52	1.29
98.42	0.92	99.46	1.01	100.50	1.10	101.54	1.49
98.44	0.92	99.48	1.01	100.52	1.10	101.56	1.76
98.46	0.92	99.50	1.01	100.54	1.10	101.58	2.07
98.48	0.92	99.52	1.02	100.56	1.10	101.60	2.42
98.50	0.92	99.54	1.02	100.58	1.10	101.62	2.82
98.52	0.93	99.56	1.02	100.60	1.11	101.64	3.24
98.54	0.93	99.58	1.02	100.62	1.11	101.66	3.70
98.56	0.93	99.60	1.02	100.64	1.11	101.68	4.19
98.58	0.93	99.62	1.03	100.66	1.11	101.70	4.70
98.60	0.93	99.64	1.03	100.68	1.11	101.72	5.24
98.62	0.94	99.66	1.03	100.70	1.11	101.74	5.81
98.64	0.94	99.68	1.03	100.72	1.12	101.76	6.40
98.66	0.94	99.70	1.03	100.74	1.12	101.78	7.01
98.68	0.94	99.72	1.03	100.76	1.12	101.80	7.65

Stage-Discharge for Pond 18P: BMP-A4 Alt 4 (continued)

Elevation (feet)	Primary (cfs)
101.82	8.30
101.84	8.98
101.86	9.68
101.88	10.40
101.90	11.13
101.92	11.89
101.94	12.66
101.96	13.45
101.98	14.26
102.00	**15.09**

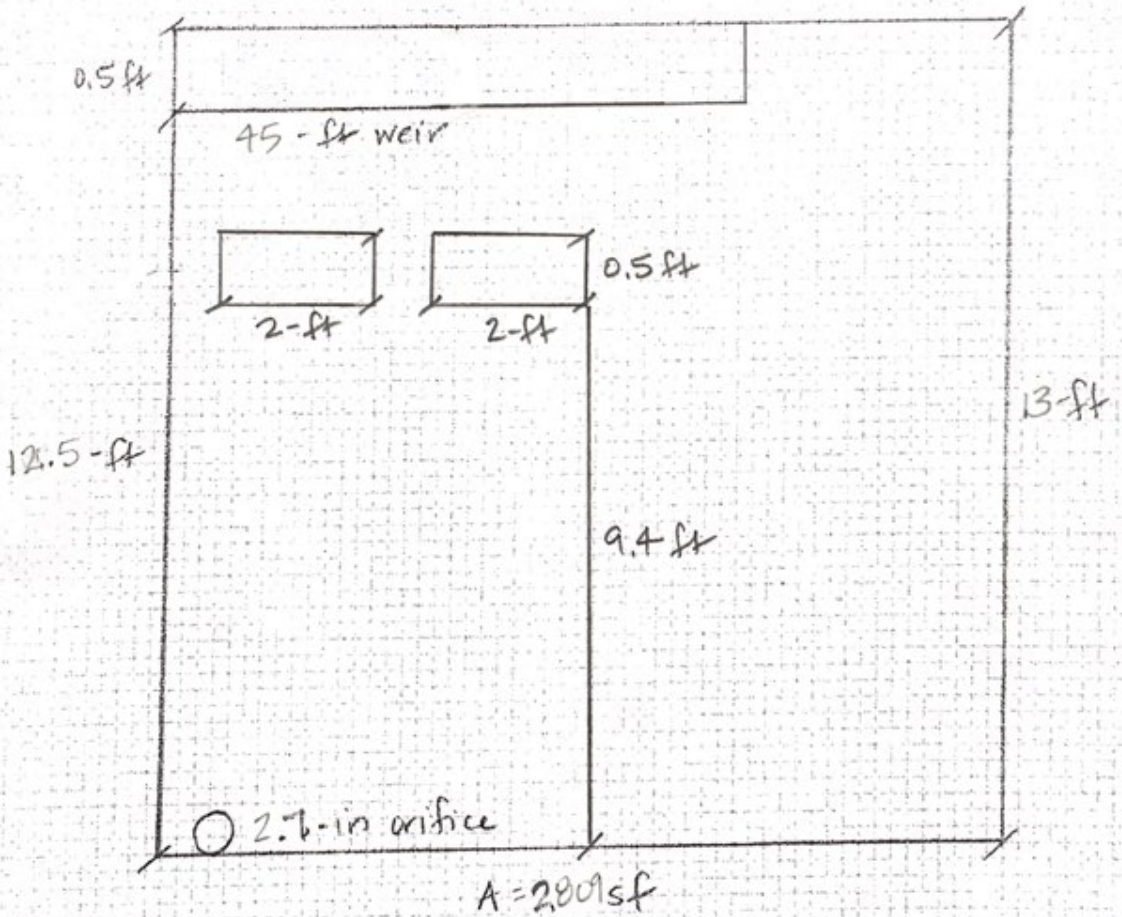
PASCO LARET SUITER & ASSOCIATES

Fox Point

Date 5/8/2020

Job# 3084

Vault



Not to scale

Attach 6

Summary for Pond 19P: VAULT

Volume	Invert	Avail.Storage	Storage Description
#1	87.60'	36,517 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
87.60	2,809	0.0	0	0	2,809
100.60	2,809	100.0	36,517	36,517	5,251

Device	Routing	Invert	Outlet Devices
#1	Primary	87.60'	**36.0" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 87.60' / 86.60' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	87.60'	**2.7" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	97.00'	**24.0" W x 6.0" H Vert. Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	100.10'	**Custom Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.50 0.50 Width (feet) 45.00 45.00 0.00

Stage-Discharge for Pond 19P: VAULT

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
87.60	0.00	89.16	0.23	90.72	0.33	92.28	0.41
87.63	0.00	89.19	0.23	90.75	0.33	92.31	0.41
87.66	0.01	89.22	0.24	90.78	0.34	92.34	0.41
87.69	0.02	89.25	0.24	90.81	0.34	92.37	0.41
87.72	0.03	89.28	0.24	90.84	0.34	92.40	0.41
87.75	0.04	89.31	0.24	90.87	0.34	92.43	0.42
87.78	0.05	89.34	0.24	90.90	0.34	92.46	0.42
87.81	0.06	89.37	0.25	90.93	0.34	92.49	0.42
87.84	0.07	89.40	0.25	90.96	0.35	92.52	0.42
87.87	0.08	89.43	0.25	90.99	0.35	92.55	0.42
87.90	0.08	89.46	0.25	91.02	0.35	92.58	0.42
87.93	0.09	89.49	0.26	91.05	0.35	92.61	0.42
87.96	0.10	89.52	0.26	91.08	0.35	92.64	0.42
87.99	0.10	89.55	0.26	91.11	0.35	92.67	0.43
88.02	0.11	89.58	0.26	91.14	0.35	92.70	0.43
88.05	0.11	89.61	0.26	91.17	0.36	92.73	0.43
88.08	0.12	89.64	0.27	91.20	0.36	92.76	0.43
88.11	0.12	89.67	0.27	91.23	0.36	92.79	0.43
88.14	0.13	89.70	0.27	91.26	0.36	92.82	0.43
88.17	0.13	89.73	0.27	91.29	0.36	92.85	0.43
88.20	0.13	89.76	0.27	91.32	0.36	92.88	0.44
88.23	0.14	89.79	0.28	91.35	0.37	92.91	0.44
88.26	0.14	89.82	0.28	91.38	0.37	92.94	0.44
88.29	0.15	89.85	0.28	91.41	0.37	92.97	0.44
88.32	0.15	89.88	0.28	91.44	0.37	93.00	0.44
88.35	0.15	89.91	0.28	91.47	0.37	93.03	0.44
88.38	0.16	89.94	0.29	91.50	0.37	93.06	0.44
88.41	0.16	89.97	0.29	91.53	0.37	93.09	0.44
88.44	0.16	90.00	0.29	91.56	0.38	93.12	0.45
88.47	0.17	90.03	0.29	91.59	0.38	93.15	0.45
88.50	0.17	90.06	0.29	91.62	0.38	93.18	0.45
88.53	0.17	90.09	0.30	91.65	0.38	93.21	0.45
88.56	0.18	90.12	0.30	91.68	0.38	93.24	0.45
88.59	0.18	90.15	0.30	91.71	0.38	93.27	0.45
88.62	0.18	90.18	0.30	91.74	0.38	93.30	0.45
88.65	0.19	90.21	0.30	91.77	0.39	93.33	0.45
88.68	0.19	90.24	0.30	91.80	0.39	93.36	0.45
88.71	0.19	90.27	0.31	91.83	0.39	93.39	0.46
88.74	0.19	90.30	0.31	91.86	0.39	93.42	0.46
88.77	0.20	90.33	0.31	91.89	0.39	93.45	0.46
88.80	0.20	90.36	0.31	91.92	0.39	93.48	0.46
88.83	0.20	90.39	0.31	91.95	0.39	93.51	0.46
88.86	0.21	90.42	0.32	91.98	0.40	93.54	0.46
88.89	0.21	90.45	0.32	92.01	0.40	93.57	0.46
88.92	0.21	90.48	0.32	92.04	0.40	93.60	0.46
88.95	0.21	90.51	0.32	92.07	0.40	93.63	0.47
88.98	0.22	90.54	0.32	92.10	0.40	93.66	0.47
89.01	0.22	90.57	0.32	92.13	0.40	93.69	0.47
89.04	0.22	90.60	0.33	92.16	0.40	93.72	0.47
89.07	0.22	90.63	0.33	92.19	0.41	93.75	0.47
89.10	0.23	90.66	0.33	92.22	0.41	93.78	0.47
89.13	0.23	90.69	0.33	92.25	0.41	93.81	0.47

Stage-Discharge for Pond 19P: VAULT (continued)

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
93.84	0.47	95.40	0.53	96.96	0.58	98.52	11.46
93.87	0.48	95.43	0.53	96.99	0.58	98.55	11.59
93.90	0.48	95.46	0.53	97.02	0.62	98.58	11.72
93.93	0.48	95.49	0.53	97.05	0.73	98.61	11.85
93.96	0.48	95.52	0.53	97.08	0.88	98.64	11.97
93.99	0.48	95.55	0.54	97.11	1.06	98.67	12.09
94.02	0.48	95.58	0.54	97.14	1.26	98.70	12.22
94.05	0.48	95.61	0.54	97.17	1.49	98.73	12.34
94.08	0.48	95.64	0.54	97.20	1.74	98.76	12.46
94.11	0.48	95.67	0.54	97.23	2.01	98.79	12.57
94.14	0.49	95.70	0.54	97.26	2.29	98.82	12.69
94.17	0.49	95.73	0.54	97.29	2.60	98.85	12.81
94.20	0.49	95.76	0.54	97.32	2.92	98.88	12.92
94.23	0.49	95.79	0.54	97.35	3.25	98.91	13.04
94.26	0.49	95.82	0.55	97.38	3.60	98.94	13.15
94.29	0.49	95.85	0.55	97.41	3.97	98.97	13.26
94.32	0.49	95.88	0.55	97.44	4.34	99.00	13.37
94.35	0.49	95.91	0.55	97.47	4.74	99.03	13.48
94.38	0.49	95.94	0.55	97.50	5.14	99.06	13.59
94.41	0.50	95.97	0.55	97.53	5.49	99.09	13.70
94.44	0.50	96.00	0.55	97.56	5.79	99.12	13.81
94.47	0.50	96.03	0.55	97.59	6.07	99.15	13.91
94.50	0.50	96.06	0.55	97.62	6.34	99.18	14.02
94.53	0.50	96.09	0.55	97.65	6.59	99.21	14.12
94.56	0.50	96.12	0.56	97.68	6.82	99.24	14.23
94.59	0.50	96.15	0.56	97.71	7.05	99.27	14.33
94.62	0.50	96.18	0.56	97.74	7.27	99.30	14.43
94.65	0.50	96.21	0.56	97.77	7.48	99.33	14.53
94.68	0.51	96.24	0.56	97.80	7.69	99.36	14.63
94.71	0.51	96.27	0.56	97.83	7.88	99.39	14.73
94.74	0.51	96.30	0.56	97.86	8.08	99.42	14.83
94.77	0.51	96.33	0.56	97.89	8.26	99.45	14.93
94.80	0.51	96.36	0.56	97.92	8.45	99.48	15.03
94.83	0.51	96.39	0.56	97.95	8.63	99.51	15.13
94.86	0.51	96.42	0.56	97.98	8.80	99.54	15.22
94.89	0.51	96.45	0.57	98.01	8.97	99.57	15.32
94.92	0.51	96.48	0.57	98.04	9.14	99.60	15.42
94.95	0.52	96.51	0.57	98.07	9.30	99.63	15.51
94.98	0.52	96.54	0.57	98.10	9.46	99.66	15.60
95.01	0.52	96.57	0.57	98.13	9.62	99.69	15.70
95.04	0.52	96.60	0.57	98.16	9.78	99.72	15.79
95.07	0.52	96.63	0.57	98.19	9.93	99.75	15.88
95.10	0.52	96.66	0.57	98.22	10.08	99.78	15.98
95.13	0.52	96.69	0.57	98.25	10.23	99.81	16.07
95.16	0.52	96.72	0.57	98.28	10.37	99.84	16.16
95.19	0.52	96.75	0.58	98.31	10.51	99.87	16.25
95.22	0.52	96.78	0.58	98.34	10.66	99.90	16.34
95.25	0.53	96.81	0.58	98.37	10.80	99.93	16.43
95.28	0.53	96.84	0.58	98.40	10.93	99.96	16.52
95.31	0.53	96.87	0.58	98.43	11.07	99.99	16.61
95.34	0.53	96.90	0.58	98.46	11.20	100.02	16.69
95.37	0.53	96.93	0.58	98.49	11.33	100.05	16.78

Stage-Discharge for Pond 19P: VAULT (continued)

Elevation (feet)	Primary (cfs)
100.08	16.87
100.11	17.10
100.14	18.22
100.17	19.86
100.20	21.87
100.23	24.20
100.26	26.81
100.29	29.67
100.32	32.76
100.35	36.05
100.38	39.55
100.41	43.23
100.44	47.10
100.47	51.13
100.50	55.32
100.53	59.68
100.56	64.18
100.59	**68.83**

Drawdown Calculation for BMP A1

Project Name Fox Point

Project No 3084

				Equations
	Drawdown Time:	3.6	**hr**	Line 9*12/Line 15
Line 6	**Surface Area**	**1532**	**sq ft**	
Line 7	**Underdrain Orifice Diameter: in**	**4**	in	
Line 8	**C:**	**0.6**		
Line 9	**Ponding** (to invert of lowest discharge opening in outlet structure):	**1.5**	ft	
Line 10	**Amended Soil Depth:**	**1.5**	ft	
Line 11	**Gravel Depth:**	**5**	ft	
Line 12	**Orifice Q =**	**1.175**	cfs	Line 8*(3.14*(Line 7/2)^2*(1/144))*(SQRT(2*32.2*(Line 9+Line 10+Line 11-((Line 7/2)/12))))
Line 13	**Effective Depth**	78.6	in	(Line 9+(0.2*Line 10)+(0.95*Line 11))*12
Line 14	**Flow Rate controlled by orifice**	33.145	in/hr	Line 12*12*3600/Line 6
Line 15	**Flow Rate controlled by soil media**	5.000	in/hr	

Drawdown Calculation for BMP A2

Project Name Fox Point

Project No 3084

				Equations
	Drawdown Time:	3.6	**hr**	Line 9*12/Line 15
Line 6	**Surface Area**	**4010**	**sq ft**	
Line 7	**Underdrain Orifice Diameter: in**	**4**	in	
Line 8	**C:**	**0.6**		
Line 9	**Ponding** (to invert of lowest discharge opening in outlet structure):	**1.5**	ft	
Line 10	**Amended Soil Depth:**	**1.5**	ft	
Line 11	**Gravel Depth:**	**5**	ft	
Line 12	**Orifice Q =**	**1.175**	cfs	Line 8*(3.14*(Line 7/2)^2*(1/144))*(SQRT(2*32.2*(Line 9+Line 10+Line 11-((Line 7/2)/12))))
Line 13	**Effective Depth**	78.6	in	(Line 9+(0.2*Line 10)+(0.95*Line 11))*12
Line 14	**Flow Rate controlled by orifice**	12.663	in/hr	Line 12*12*3600/Line 6
Line 15	**Flow Rate controlled by soil media**	5.000	in/hr	

Drawdown Calculation for BMP A3

Project Name Fox Point

Project No 3084

				Equations
	Drawdown Time:	3.6	**hr**	Line 9*12/Line 15
Line 6	**Surface Area**	**4388**	**sq ft**	
Line 7	**Underdrain Orifice Diameter: in**	**4**	in	
Line 8	**C:**	**0.6**		
Line 9	**Ponding** (to invert of lowest discharge opening in outlet structure):	**1.5**	ft	
Line 10	**Amended Soil Depth:**	**1.5**	ft	
Line 11	**Gravel Depth:**	**5**	ft	
Line 12	**Orifice Q =**	**1.175**	cfs	Line 8*(3.14*(Line 7/2)^2*(1/144))*(SQRT(2*32.2*(Line 9+Line 10+Line 11-((Line 7/2)/12))))
Line 13	**Effective Depth**	78.6	in	(Line 9+(0.2*Line 10)+(0.95*Line 11))*12
Line 14	**Flow Rate controlled by orifice**	11.572	in/hr	Line 12*12*3600/Line 6
Line 15	**Flow Rate controlled by soil media**	5.000	in/hr	

Drawdown Calculation for BMP A4

Project Name Fox Point

Project No 3084

				Equations
	Drawdown Time:	3.6	**hr**	Line 9*12/Line 15
Line 6	**Surface Area**	**1609**	**sq ft**	
Line 7	**Underdrain Orifice Diameter: in**	**4**	in	
Line 8	**C:**	**0.6**		
Line 9	**Ponding** (to invert of lowest discharge opening in outlet structure):	**1.5**	ft	
Line 10	**Amended Soil Depth:**	**1.5**	ft	
Line 11	**Gravel Depth:**	**5**	ft	
Line 12	**Orifice Q =**	**1.175**	cfs	Line 8*(3.14*(Line 7/2)^2*(1/144))*(SQRT(2*32.2*(Line 9+Line 10+Line 11-((Line 7/2)/12))))
Line 13	**Effective Depth**	78.6	in	(Line 9+(0.2*Line 10)+(0.95*Line 11))*12
Line 14	**Flow Rate controlled by orifice**	31.559	in/hr	Line 12*12*3600/Line 6
Line 15	**Flow Rate controlled by soil media**	5.000	in/hr	

Drawdown Calculation for BMP A5

Project Name Fox Point

Project No 3084

				Equations
	Drawdown Time:	4.0	**hr**	Line 9*12/Line 14
Line 6	**Surface Area**	**221**	**sq ft**	
Line 7	**Underdrain Orifice Diameter: in**	**0.5**	in	
Line 8	**C:**	**0.6**		
Line 9	**Ponding** (to invert of lowest discharge opening in outlet structure):	**1**	ft	
Line 10	**Amended Soil Depth:**	**1.5**	ft	
Line 11	**Gravel Depth:**	**3**	ft	
Line 12	**Orifice Q =**	**0.015**	cfs	Line 8*(3.14*(Line 7/2)^2*(1/144))*(SQRT(2*32.2*(Line 9+Line 10+Line 11-((Line 7/2)/12))))
Line 13	**Effective Depth**	49.8	in	(Line 9+(0.2*Line 10)+(0.95*Line 11))*12
Line 14	**Flow Rate controlled by orifice**	3.003	in/hr	Line 12*12*3600/Line 6

Vault Drawdown Calculation

Project Name Fox Point

Project No 3084 Date 7/23/2020

Vault Drawdown	**25.5**	**hrs**

Note: Drawdown time is calculated assuming an initial water surface depth equal to the invert of the lowest surface discharge opening in the vault outlet struct

Line 1	**Underdrain Orifice Diameter:**	**2.7**	in
Line 2	**C:**	**0.6**	

	Surface Depth (ft)	**Volume (cf)**	**$Q_{orifice}$ (cfs)**	**ΔT (hr)**	**Total Time (hr)**
Line 3	9.4	26405.00	0.584	0.000	0.0
Line 4	7.4	20787.00	0.518	2.833	2.83
	5.4	15169.00	0.441	3.255	6.09
	3.4	9551.00	0.348	3.952	10.04
	1.4	3933.00	0.220	5.494	15.54
	0	0.00	0.000	9.951	25.49

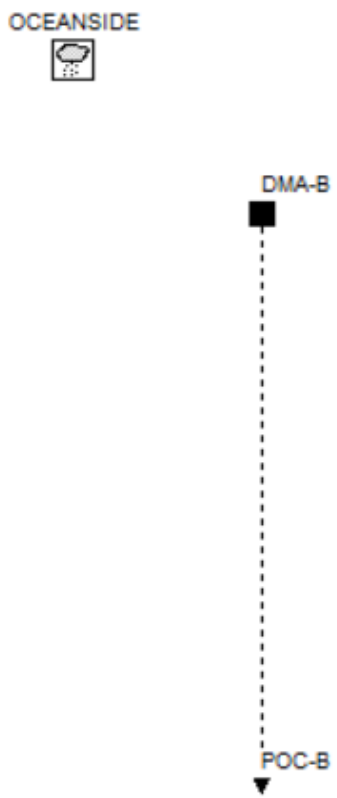
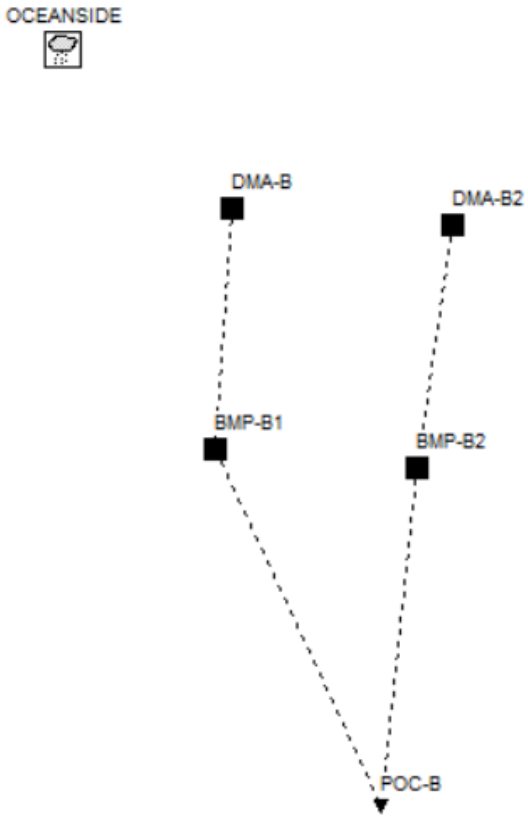
Qorifice = Line 2*(3.14*(Line 1/2)^2*(1/144))*(SQRT(2*32.2*(Line 3-((Line 1/2)/12))))

ΔT (hr) = ((Line C3-Line C4)/((Line D3+Line D4)/2))/3600

Total Time (hr) = Line F3+Line E4

3084 Fox Point
2/26/2020

SWMM MODEL SCHEMATICS

PRE-PROJECT MODEL	POST-PROJECT MODEL
	

3205 Fox Point Farms
5/7/2020

POC-B SWMM INPUT

PRE-PROJECT											
DMA	BMP	Area (ac)	Width (Area/Flow Length) (ft)	% Slope	% Impervious	% "B" Soils	% "C" Soils	% "D" Soils	Weighted Infiltration (in/hr):	Weighted Suction Head (in):	Weighted Initial Deficit:
DMA-B	N/A	3.74	556	1.0%	0%	0%	0%	100%	0.025	9.000	0.330
	Total:	**3.74**									

POST-PROJECT											
DMA	BMP	Area (ac)	Width (Area/Flow Length) (ft)	% Impervious	% Slope	% "B" Soils	% "C" Soils	% "D" Soils	Weighted Infiltration (in/hr):	Weighted Suction Head (in):	Weighted Initial Deficit:
DMA-B1	B1	0.39	338	62.1%	1.0%	0%	0.0%	100%	0.025	9.000	0.330
BMP-B1	B1	0.01253	20	0.0%	0.0%	0%	0.0%	100%	0.025	9.000	0.330
DMA-B2	B2	0.59	460	46.1%	1.0%	0%	0.0%	100%	0.025	9.000	0.330
BMP-B2	B2	0.00918	27	0.0%	0.0%	0%	0.0%	100%	0.025	9.000	0.330
	Total:	**1.00**									

Infiltration:		
D:	0.025	in/hr

Suction Head:		
D:	9	in

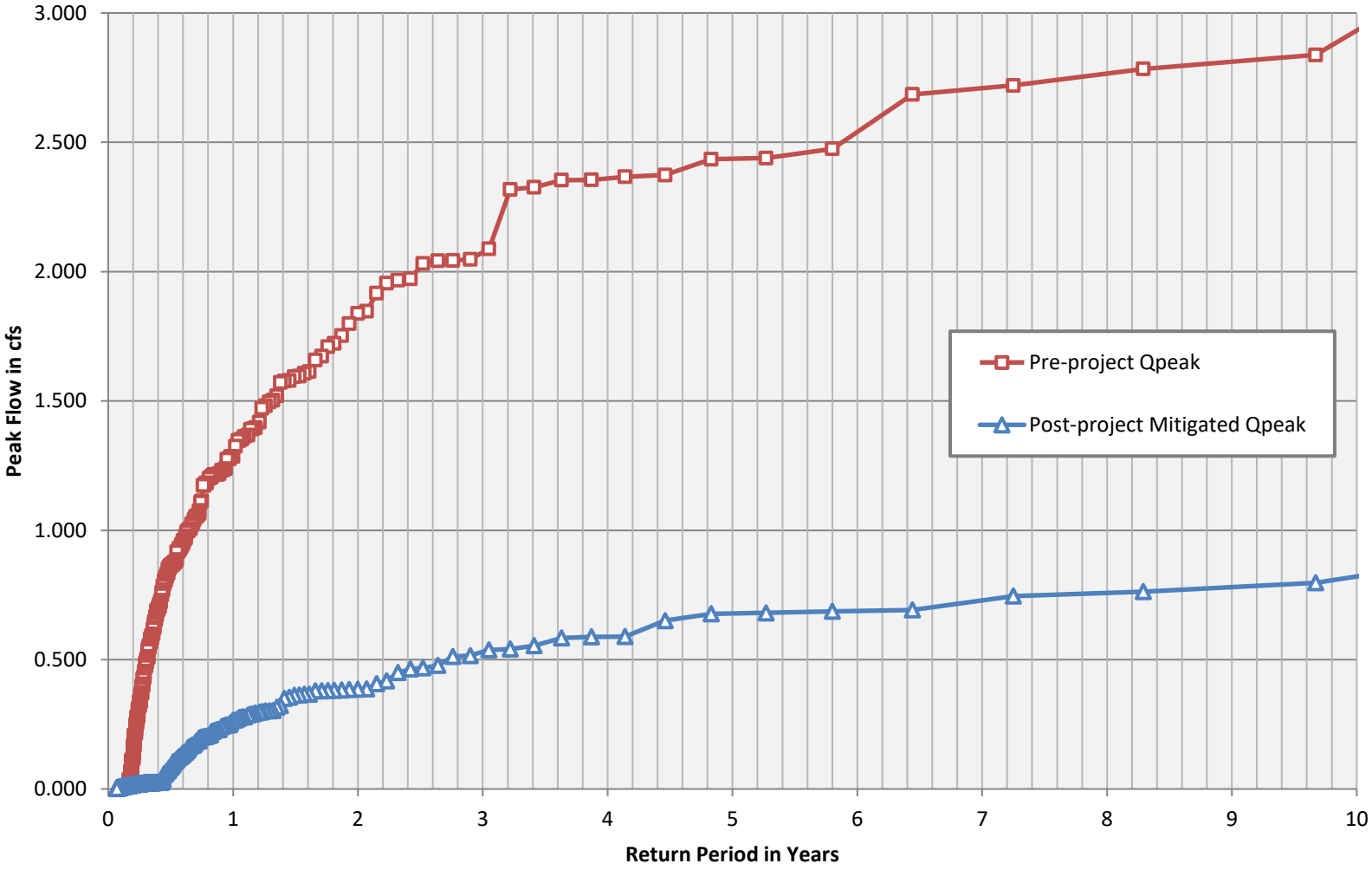
Initial Deficit	
D:	0.33

POC-B

Peak Flow Frequency Summary

Return Period	Pre-project Qpeak (cfs)	Post-project - Mitigated Q (cfs)
LF = 0.1xQ2	0.184	0.039
2-year	1.839	0.386
5-year	2.437	0.679
10-year	2.932	0.822

Peak Flow Frequency Curves
POC-B



Low-flow Threshold: 10%

POC-B

0.1xQ2 (Pre): 0.184 cfs

Q10 (Pre): 2.932 cfs

Ordinate #: 100

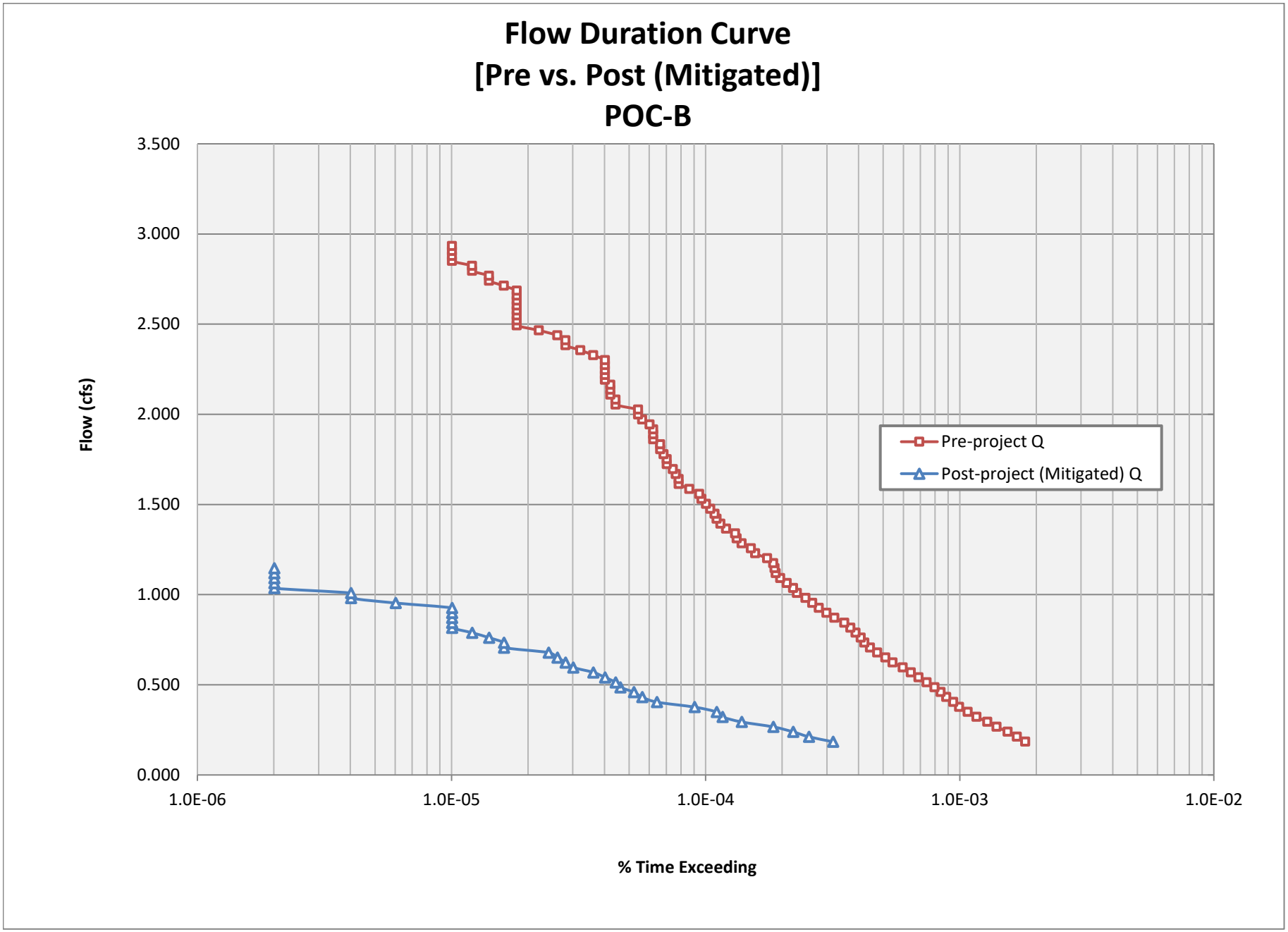
Incremental Q (Pre): 0.02748 cfs

Total Hourly Data: 497370 hours

The proposed BMP: PASSED

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
0	0.184	902	1.81E-03	158	3.18E-04	18%	Pass
1	0.211	836	1.68E-03	127	2.55E-04	15%	Pass
2	0.239	768	1.54E-03	110	2.21E-04	14%	Pass
3	0.266	695	1.40E-03	92	1.85E-04	13%	Pass
4	0.294	639	1.28E-03	69	1.39E-04	11%	Pass
5	0.321	580	1.17E-03	58	1.17E-04	10%	Pass
6	0.349	535	1.08E-03	55	1.11E-04	10%	Pass
7	0.376	495	9.95E-04	45	9.05E-05	9%	Pass
8	0.404	470	9.45E-04	32	6.43E-05	7%	Pass
9	0.431	441	8.87E-04	28	5.63E-05	6%	Pass
10	0.459	419	8.42E-04	26	5.23E-05	6%	Pass
11	0.486	396	7.96E-04	23	4.62E-05	6%	Pass
12	0.514	369	7.42E-04	22	4.42E-05	6%	Pass
13	0.541	343	6.90E-04	20	4.02E-05	6%	Pass
14	0.569	320	6.43E-04	18	3.62E-05	6%	Pass
15	0.596	297	5.97E-04	15	3.02E-05	5%	Pass
16	0.624	271	5.45E-04	14	2.81E-05	5%	Pass
17	0.651	254	5.11E-04	13	2.61E-05	5%	Pass
18	0.679	236	4.74E-04	12	2.41E-05	5%	Pass
19	0.706	221	4.44E-04	8	1.61E-05	4%	Pass
20	0.734	210	4.22E-04	8	1.61E-05	4%	Pass
21	0.761	203	4.08E-04	7	1.41E-05	3%	Pass
22	0.789	194	3.90E-04	6	1.21E-05	3%	Pass
23	0.816	185	3.72E-04	5	1.01E-05	3%	Pass
24	0.843	175	3.52E-04	5	1.01E-05	3%	Pass
25	0.871	160	3.22E-04	5	1.01E-05	3%	Pass
26	0.898	149	3.00E-04	5	1.01E-05	3%	Pass
27	0.926	139	2.79E-04	5	1.01E-05	4%	Pass
28	0.953	131	2.63E-04	3	6.03E-06	2%	Pass
29	0.981	123	2.47E-04	2	4.02E-06	2%	Pass
30	1.008	114	2.29E-04	2	4.02E-06	2%	Pass
31	1.036	110	2.21E-04	1	2.01E-06	1%	Pass
32	1.063	104	2.09E-04	1	2.01E-06	1%	Pass
33	1.091	98	1.97E-04	1	2.01E-06	1%	Pass
34	1.118	94	1.89E-04	1	2.01E-06	1%	Pass
35	1.146	93	1.87E-04	1	2.01E-06	1%	Pass
36	1.173	92	1.85E-04	0	0.00E+00	0%	Pass
37	1.201	87	1.75E-04	0	0.00E+00	0%	Pass
38	1.228	78	1.57E-04	0	0.00E+00	0%	Pass
39	1.256	75	1.51E-04	0	0.00E+00	0%	Pass
40	1.283	69	1.39E-04	0	0.00E+00	0%	Pass
41	1.311	66	1.33E-04	0	0.00E+00	0%	Pass
42	1.338	65	1.31E-04	0	0.00E+00	0%	Pass
43	1.366	60	1.21E-04	0	0.00E+00	0%	Pass
44	1.393	57	1.15E-04	0	0.00E+00	0%	Pass
45	1.421	55	1.11E-04	0	0.00E+00	0%	Pass
46	1.448	54	1.09E-04	0	0.00E+00	0%	Pass
47	1.476	52	1.05E-04	0	0.00E+00	0%	Pass
48	1.503	50	1.01E-04	0	0.00E+00	0%	Pass
49	1.531	48	9.65E-05	0	0.00E+00	0%	Pass
50	1.558	47	9.45E-05	0	0.00E+00	0%	Pass
51	1.586	43	8.65E-05	0	0.00E+00	0%	Pass
52	1.613	39	7.84E-05	0	0.00E+00	0%	Pass
53	1.641	39	7.84E-05	0	0.00E+00	0%	Pass
54	1.668	38	7.64E-05	0	0.00E+00	0%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
55	1.695	37	7.44E-05	0	0.00E+00	0%	Pass
56	1.723	35	7.04E-05	0	0.00E+00	0%	Pass
57	1.750	35	7.04E-05	0	0.00E+00	0%	Pass
58	1.778	34	6.84E-05	0	0.00E+00	0%	Pass
59	1.805	33	6.63E-05	0	0.00E+00	0%	Pass
60	1.833	33	6.63E-05	0	0.00E+00	0%	Pass
61	1.860	31	6.23E-05	0	0.00E+00	0%	Pass
62	1.888	31	6.23E-05	0	0.00E+00	0%	Pass
63	1.915	31	6.23E-05	0	0.00E+00	0%	Pass
64	1.943	30	6.03E-05	0	0.00E+00	0%	Pass
65	1.970	28	5.63E-05	0	0.00E+00	0%	Pass
66	1.998	27	5.43E-05	0	0.00E+00	0%	Pass
67	2.025	27	5.43E-05	0	0.00E+00	0%	Pass
68	2.053	22	4.42E-05	0	0.00E+00	0%	Pass
69	2.080	22	4.42E-05	0	0.00E+00	0%	Pass
70	2.108	21	4.22E-05	0	0.00E+00	0%	Pass
71	2.135	21	4.22E-05	0	0.00E+00	0%	Pass
72	2.163	21	4.22E-05	0	0.00E+00	0%	Pass
73	2.190	20	4.02E-05	0	0.00E+00	0%	Pass
74	2.218	20	4.02E-05	0	0.00E+00	0%	Pass
75	2.245	20	4.02E-05	0	0.00E+00	0%	Pass
76	2.273	20	4.02E-05	0	0.00E+00	0%	Pass
77	2.300	20	4.02E-05	0	0.00E+00	0%	Pass
78	2.328	18	3.62E-05	0	0.00E+00	0%	Pass
79	2.355	16	3.22E-05	0	0.00E+00	0%	Pass
80	2.383	14	2.81E-05	0	0.00E+00	0%	Pass
81	2.410	14	2.81E-05	0	0.00E+00	0%	Pass
82	2.438	13	2.61E-05	0	0.00E+00	0%	Pass
83	2.465	11	2.21E-05	0	0.00E+00	0%	Pass
84	2.492	9	1.81E-05	0	0.00E+00	0%	Pass
85	2.520	9	1.81E-05	0	0.00E+00	0%	Pass
86	2.547	9	1.81E-05	0	0.00E+00	0%	Pass
87	2.575	9	1.81E-05	0	0.00E+00	0%	Pass
88	2.602	9	1.81E-05	0	0.00E+00	0%	Pass
89	2.630	9	1.81E-05	0	0.00E+00	0%	Pass
90	2.657	9	1.81E-05	0	0.00E+00	0%	Pass
91	2.685	9	1.81E-05	0	0.00E+00	0%	Pass
92	2.712	8	1.61E-05	0	0.00E+00	0%	Pass
93	2.740	7	1.41E-05	0	0.00E+00	0%	Pass
94	2.767	7	1.41E-05	0	0.00E+00	0%	Pass
95	2.795	6	1.21E-05	0	0.00E+00	0%	Pass
96	2.822	6	1.21E-05	0	0.00E+00	0%	Pass
97	2.850	5	1.01E-05	0	0.00E+00	0%	Pass
98	2.877	5	1.01E-05	0	0.00E+00	0%	Pass
99	2.905	5	1.01E-05	0	0.00E+00	0%	Pass
100	2.932	5	1.01E-05	0	0.00E+00	0%	Pass


Flow Duration Curve
[Pre vs. Post (Mitigated)]
POC-B
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
Flow (cfs)
1.0E-06
1.0E-05
1.0E-04
1.0E-03
1.0E-02
% Time Exceeding
Pre-project Q
Post-project (Mitigated) Q

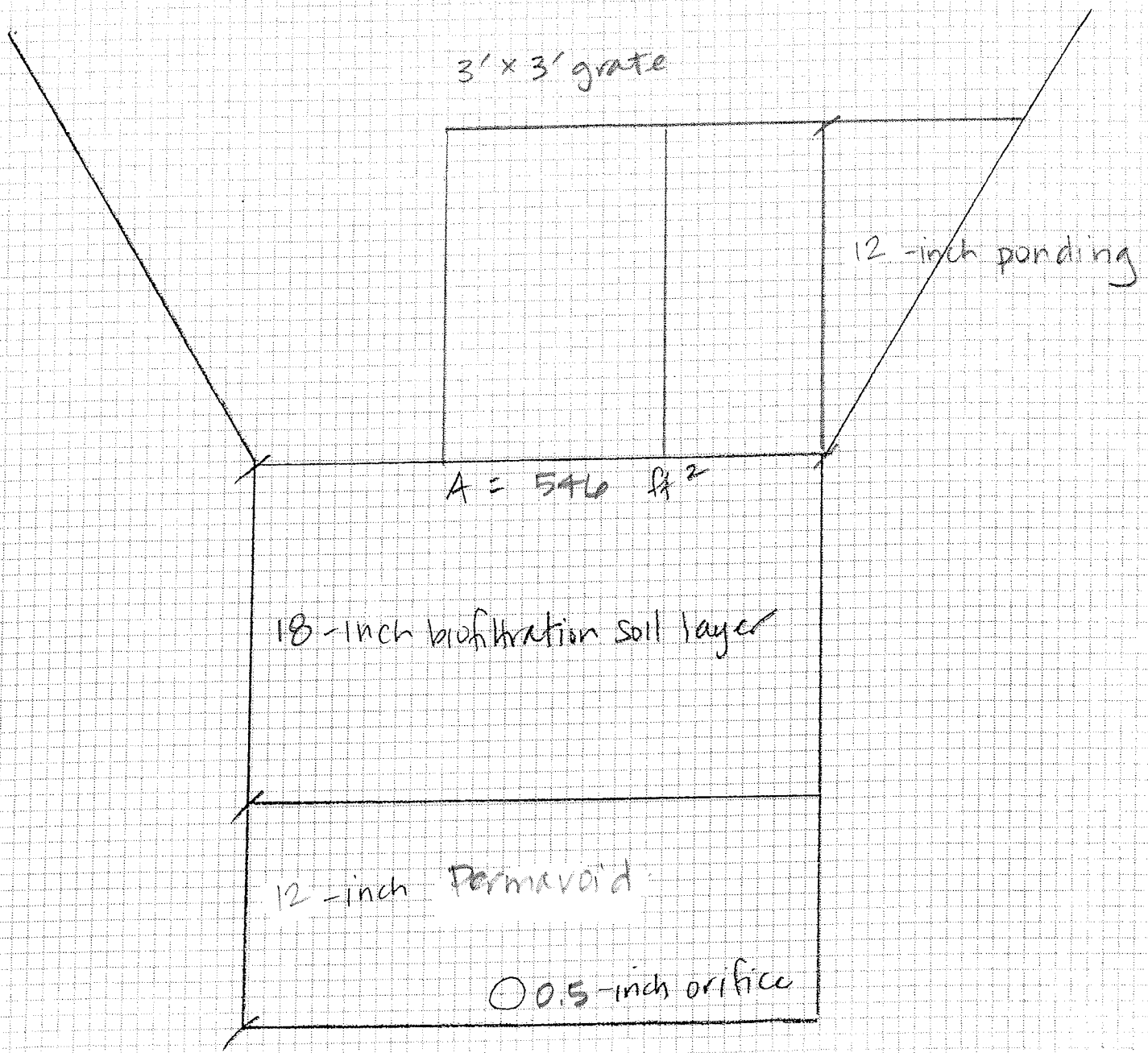
PASCO LARET SUITER & ASSOCIATES

For Paint

Date 2/26/2020

Job# 3089

HMP Biofiltration Basin BMP - B1



Not to scale

Alt #3

SWMM Model Flow Coefficient Calculation

BMP-B1 PARAMETER	ABBREV.	Bio-Retention Cell LID BMP	
Ponding Depth	PD	12	in
Bioretention Soil Layer	S	18	in
Gravel Layer	G	12	in
TOTAL		3.5 42	ft in
Orifice Coefficient	c_g	0.6	--
Low Flow Orifice Diameter	D	0.5	in
Drain exponent	n	0.5	--
Flow Rate (volumetric)	Q	0.012	cfs
Ponding Depth Surface Area	A_{PD}	546	ft^2
Bioretention Surface Area	A_S, A_G	546	ft^2
	A_S, A_G	0.0125	ac
Porosity of Bioretention Soil	n	1.00	-
Flow Rate (per unit area)	q	0.969	in/hr
Effective Ponding Depth	PD_{eff}	**12.00**	in
Flow Coefficient	C	**0.1500**	--

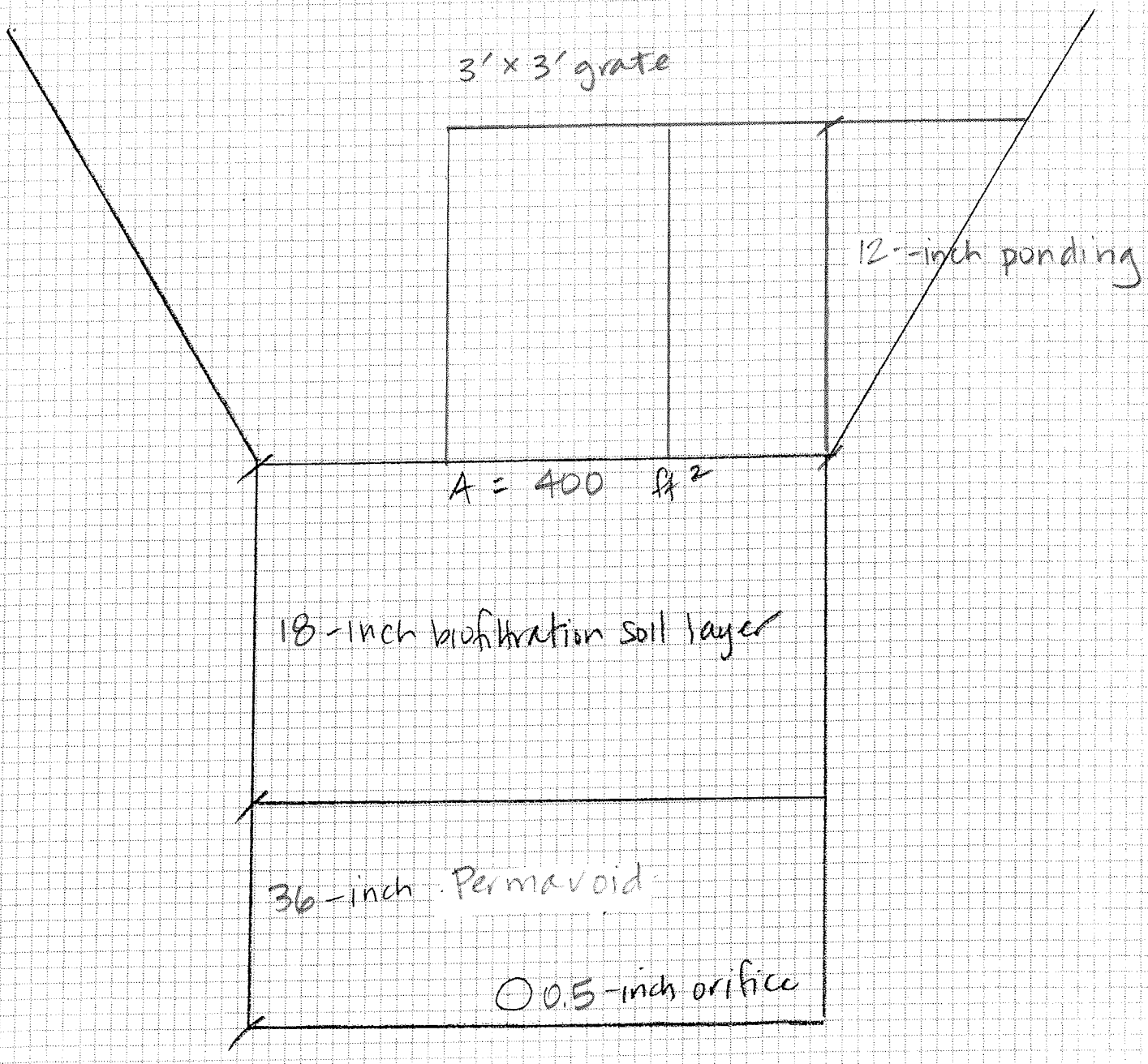
PASCO LARET SUITER & ASSOCIATES

Fox Point

Date 2/26/2020

Job# 3089

HMP Biofiltration Basin BMP-B2



Not to scale

Alt #3

SWMM Model Flow Coefficient Calculation

BMP-B2 PARAMETER	ABBREV.	Bio-Retention Cell LID BMP	
Ponding Depth	PD	12	in
Bioretention Soil Layer	S	18	in
Gravel Layer	G	36	in
TOTAL		5.5	ft
		66	in
Orifice Coefficient	c_g	0.6	--
Low Flow Orifice Diameter	D	0.5	in
Drain exponent	n	0.5	--
Flow Rate (volumetric)	Q	0.015	cfs
Ponding Depth Surface Area	A_{PD}	400	ft^2
Bioretention Surface Area	A_S, A_G	400	ft^2
	A_S, A_G	0.0092	ac
Porosity of Bioretention Soil	n	1.00	-
Flow Rate (per unit area)	q	1.660	in/hr
Effective Ponding Depth	PD_{eff}	**12.00**	in
Flow Coefficient	C	**0.2047**	--

	Drawdown Calculation for BMP	B1		
	Project Name	Fox Point		
	Project No	3084		Equations
	Drawdown Time:	12.4	**hr**	Line 9*12/Line 14
Line 6	**Surface Area**	**546**	**sq ft**	
Line 7	**Underdrain Orifice Diameter: in**	**0.5**	in	
Line 8	**C:**	**0.6**		
Line 9	**Ponding** (to invert of lowest discharge opening in outlet structure):	**1**	ft	
Line 10	**Amended Soil Depth:**	**1.5**	ft	
Line 11	**Gravel Depth:**	**1**	ft	
Line 12	**Orifice Q =**	**0.012**	cfs	Line 8*(3.14*(Line 7/2)^2*(1/144))*(SQRT(2*32.2*(Line 9+Line 10+Line 11-((Line 7/2)/12))))
Line 13	**Effective Depth**	27	in	(Line 9+(0.2*Line 10)+(0.95*Line 11))*12
Line 14	**Flow Rate controlled by orifice**	0.968	in/hr	Line 12*12*3600/Line 6

	Drawdown Calculation for BMP	B2		
	Project Name	Fox Point		
	Project No	3084		Equations
	Drawdown Time:	7.2	**hr**	Line 9*12/Line 14
Line 6	**Surface Area**	**400**	**sq ft**	
Line 7	**Underdrain Orifice Diameter: in**	**0.5**	in	
Line 8	**C:**	**0.6**		
Line 9	**Ponding** (to invert of lowest discharge opening in outlet structure):	**1**	ft	
Line 10	**Amended Soil Depth:**	**1.5**	ft	
Line 11	**Gravel Depth:**	**3**	ft	
Line 12	**Orifice Q =**	**0.015**	cfs	Line 8*(3.14*(Line 7/2)^2*(1/144))*(SQRT(2*32.2*(Line 9+Line 10+Line 11-((Line 7/2)/12))))
Line 13	**Effective Depth**	49.8	in	(Line 9+(0.2*Line 10)+(0.95*Line 11))*12
Line 14	**Flow Rate controlled by orifice**	1.659	in/hr	Line 12*12*3600/Line 6

TORY R. WALKER ENGINEERING
RELIABLE SOLUTIONS IN WATER RESOURCES

Manning's *n* Values for Overland Flow[1]

The BMP Design Manuals within the County of San Diego allow for a land surface description other than short prairie grass to be used for hydromodification BMP design only if documentation provided is consistent with Table A.6 of the SWMM 5 User's Manual.

In January 2016, the EPA released the SWMM Reference Manual Volume I – Hydrology (SWMM Hydrology Reference Manual). The SWMM Hydrology Reference Manual complements the SWMM 5 User's Manual by providing an in-depth description of the program's hydrologic components. Table 3-5 of the SWMM Hydrology Reference Manual expounds upon Table A.6 of the SWMM 5 User's Manual by providing Manning's *n* values for additional overland flow surfaces. Therefore, in order to provide SWMM users with a wider range of land surfaces suitable for local application and to provide Copermittees with confidence in the design parameters, we recommend using the values published by Yen and Chow in Table 3-5 of the EPA SWMM Reference Manual Volume I – Hydrology. The values are provided in the table below:

Overland Surface	**Manning value (*n*)**
Smooth asphalt pavement	0.010
Smooth impervious surface	0.011
Tar and sand pavement	0.012
Concrete pavement	0.014
Rough impervious surface	0.015
Smooth bare packed soil	0.017
Moderate bare packed soil	0.025
Rough bare packed soil	0.032
Gravel soil	0.025
Mowed poor grass	0.030
Average grass, closely clipped sod	0.040
Pasture	0.040
Timberland	0.060
Dense grass	0.060
Shrubs and bushes	0.080
Land Use	
Business	0.014
Semibusiness	0.022
Industrial	0.020
Dense residential	0.025
Suburban residential	0.030
Parks and lawns	0.040

[1]Content summarized from *Improving Accuracy in Continuous Simulation Modeling: Guidance for Selecting Pervious Overland Flow Manning's n Values in the San Diego Region* (TRWE, 2016).

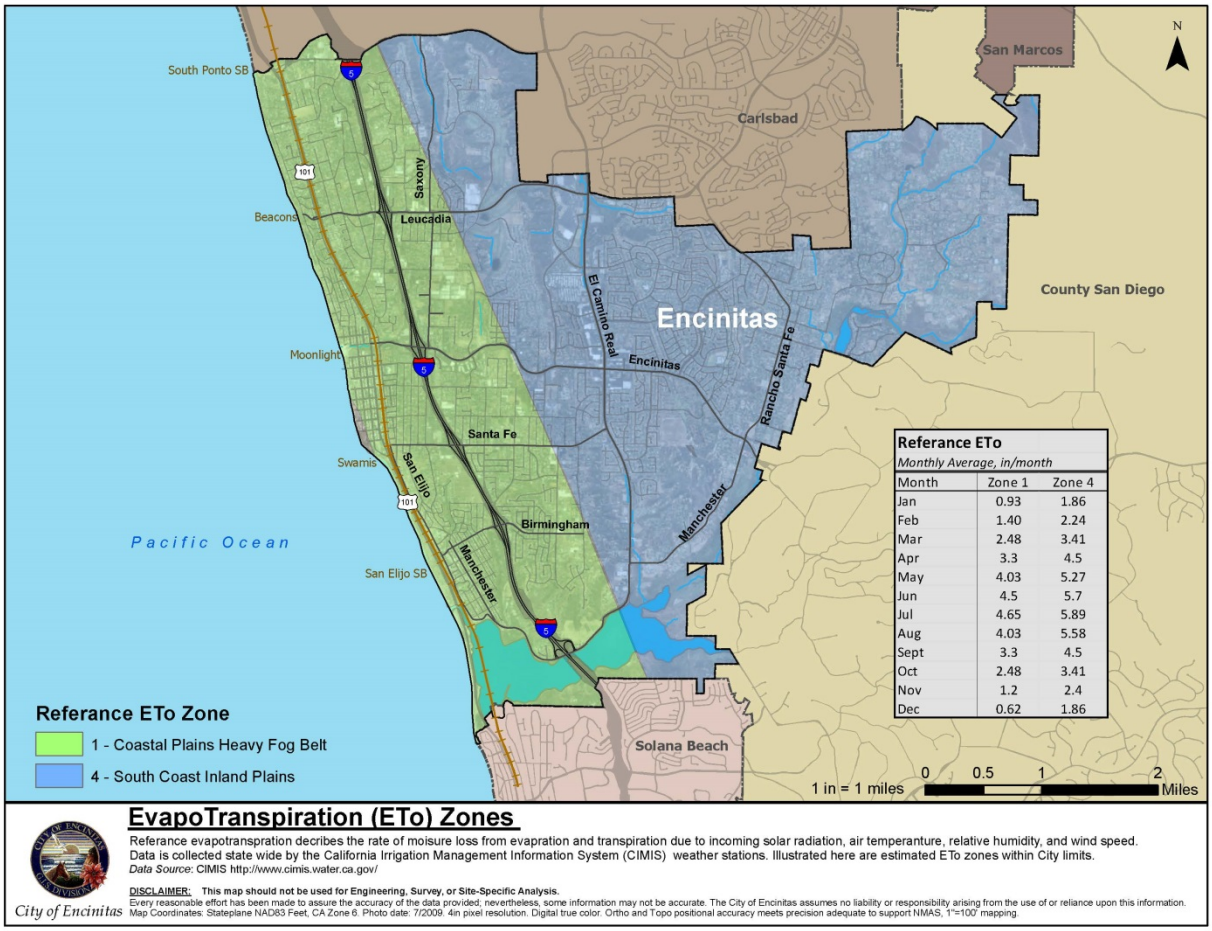


Figure G.1-2: California Irrigation Management Information System "Reference Evapotranspiration Zones"

Table G.1-1: Monthly Average Reference Evapotranspiration by ETo Zone (inches/month and inches/day) for use in SWMM Models for Hydromodification Management Studies in San Diego County CIMIS Zones 1, 4, 6, 9, and 16 (See CIMIS ETo Zone Map)

	January	February	March	April	May	June	July	August	September	October	November	December
Zone	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month
1	0.93	1.4	2.48	3.3	4.03	4.5	4.65	4.03	3.3	2.48	1.2	0.62
4	1.86	2.24	3.41	4.5	5.27	5.7	5.89	5.58	4.5	3.41	2.4	1.86
6	1.86	2.24	3.41	4.8	5.58	6.3	6.51	6.2	4.8	3.72	2.4	1.86
9	2.17	2.8	4.03	5.1	5.89	6.6	7.44	6.82	5.7	4.03	2.7	1.86
16	1.55	2.52	4.03	5.7	7.75	8.7	9.3	8.37	6.3	4.34	2.4	1.55
	January	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Days	31	28	31	30	31	30	31	31	30	31	30	31
Zone	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day
1	0.030	0.050	0.080	0.110	0.130	0.150	0.150	0.130	0.110	0.080	0.040	0.020
4	0.060	0.080	0.110	0.150	0.170	0.190	0.190	0.180	0.150	0.110	0.080	0.060
6	0.060	0.080	0.110	0.160	0.180	0.210	0.210	0.200	0.160	0.120	0.080	0.060
9	0.070	0.100	0.130	0.170	0.190	0.220	0.240	0.220	0.190	0.130	0.090	0.060
16	0.050	0.090	0.130	0.190	0.250	0.290	0.300	0.270	0.210	0.140	0.080	0.050

ATTACHMENT 3 - STRUCTURAL BMP MAINTENANCE INFORMATION

This is the cover sheet for Attachment 3.

Indicate which items are included behind this cover sheet:

Attachment	Contents	Checklist
Attachment 3a	Structural BMP Maintenance Thresholds and Actions (Required)	☑ Included See Structural BMP Maintenance Information Checklist on the back of this Attachment cover sheet.
Attachment 3b	Draft Maintenance Agreement (when applicable)	□ Included ☑ Not Applicable

Use this checklist to ensure the required information has been included in the Structural BMP Maintenance Information Attachment:

□ **Preliminary Design / Planning / CEQA level submittal:**

Attachment 3a must identify:

□ Typical maintenance indicators and actions for proposed structural BMP(s) based on Section 7.7 of the BMP Design Manual

Attachment 3b is not required for preliminary design / planning / CEQA level submittal.

□ **Final Design level submittal:**

Attachment 3a must identify:

□ Specific maintenance indicators and actions for proposed structural BMP(s). This shall be based on Section 7.7 of the BMP Design Manual and enhanced to reflect actual proposed components of the structural BMP(s)

□ 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, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)

□ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable

□ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)

□ Recommended equipment to perform maintenance

□ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management

Attachment 3b: For private entity operation and maintenance, Attachment 3b shall include a draft maintenance agreement in the local jurisdiction's standard format (PDP applicant to contact the City Engineer to obtain the current maintenance agreement forms).

APPENDIX 3a
BMP MAINTENANCE THRESHOLDS

BMP DESCRIPTION

BIOFILTRATION BASIN	STORM WATER MANAGEMENT AND DISCHARGE CONTROL MAINTENANCE AGREEMENT APPROVAL NO: _____ O&M RESPONSIBLE PARTY DESIGNEE: HOA

POST-CONSTRUCTION PERMANENT BMP OPERATION & MAINTENANCE PROCEDURE DETAILS

MAINTENANCE INDICATORS	MAINTENANCE ACTION
ACCUMULATION OF SEDIMENT, LITTER, OR DEBRIS	REMOVE AND PROPERLY DISPOSE OF ACCUMULATED MATERIALS, WITHOUT DAMAGE TO THE VEGETATION
POOR VEGETATION ESTABLISHMENT	RE-SEED, RE-PLANT, OR RE-ESTABLISH VEGETATION PER ORIGINAL PLANS
OVERGROWN VEGETATION	MOW OR TRIM AS APPROPRIATE, BUT NOT LESS THAT THE DESIGN HEIGHT OF THE VEGETATION PER ORIGINAL PLANS.
EROSION DUE TO CONCENTRATED IRRIGATION FLOW	REPAIR/RE-SEED/RE-PLANT ERODED AREAS AND ADJUST THE IRRIGATION SYSTEM
EROSION DUE TO CONCENTRATED STORM WATER RUNOFF FLOW	REPAIR/RE-SEED/RE-PLANT ERODED AREAS AND MAKE APPROPRIATE CORRECTIVE MEASURES SUCH AS ADDING STONE AT FLOW ENTRY POINTS OR MINOR RE-GRADING TO RESTORE PROPER DRAINAGE ACCORDING TO THE ORIGINAL PLAN.
STANDING WATER IN BIOFILTRATION AREAS	MAKE APPROPRIATE CORRECTIVE MEASURES SUCH AS ADJUSTING IRRIGATION SYSTEM, REMOVING OBSTRUCTION OF DEBRIS OR INVASIVE VEGETATION, OR CLEANING UNDERDRAINS
OBSTRUCTED INLET OR OUTLET STRUCTURE	CLEAR OBSTRUCTIONS
DAMAGE TO INLET OR OUTLET STRUCTURE	REPAIR OR REPLACE AS APPLICABLE

MAINTENANCE EQUIPMENT AND ACCESS
USE LANDSCAPE EQUIPMENT FOR MAINTENANCE; ACCESS BMP FROM PRIVATE ROAD AT NORTHWEST CORNER OF SITE

INSPECTION FACILITATION
INSTALL 3' X 3' OUTLET RISER STRUCTURE TO PROVIDE OBSERVATION ACCESS FOR INSPECTION OF MAINTENANCE THRESHOLDS; MARKING TO BE PROVIDED ON BMP COMPONENTS TO DETERMINE HOW FULL BMP IS.

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ATTACHMENT 4 - COPY OF PLAN SHEETS SHOWING PERMANENT STORM WATER BMPS

This is the cover sheet for Attachment 4.

Use this checklist to ensure the required information has been included on the plans:

The plans must identify:

- □ Structural BMP(s) with ID numbers matching Form I-6 Summary of PDP Structural BMPs
- □ The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
- □ Details and specifications for construction of structural BMP(s)
- □ Signage indicating the location and boundary of structural BMP(s) as required by the [City Engineer]
- □ 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, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- □ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- □ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
- □ Recommended equipment to perform maintenance
- □ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
- □ Include landscaping plan sheets showing vegetation requirements for vegetated structural BMP(s)
- □ All BMPs must be fully dimensioned on the plans
- □ When proprietary BMPs are used, site-specific cross section with outflow, inflow, and model number shall be provided. Photocopies of general brochures are not acceptable.

PRELIMINARY GRADING PLAN

FOX POINT FARMS, ENCINITAS, CA

SHEET C1.2

SEE SHEET C1.5



LEGEND

- SUBDIVISION BOUNDARY
- RIGHT-OF-WAY
- PROPOSED 1" DOMESTIC WATER SERVICE PER WS-09
- PROPOSED FIRE SERVICE
- PROPOSED 4" SEWER LATERAL PER SS-01
- S — PROPOSED 8" SEWER PVC MAIN
- W — PROPOSED 8" PVC WATER MAIN
- JT — PROPOSED 24"X42" JOINT TRENCH
- PROPOSED ADAPTABLE UNIT
- PROPOSED ADA PATH OF TRAVEL
- SIGHT DISTANCE TRIANGLES
- PROPOSED MANHOLE PER SM-02
- PROPOSED RETAINING WALL
- PROPOSED FIRE HYDRANT PER WF-01
- PROPOSED PVC STORM DRAIN (SIZE PER PLAN)
- PROPOSED DRAINAGE STRUCTURE (SIZE PER PLAN)
- PROPOSED HEADWALL PER D-34
- PROPOSED CURB OUTLET PER D-25
- PROPOSED BIOFILTRATION BASIN
- PROPOSED BASIN ACCESS PATH
- PROPOSED DG PARKING LOT
- PROPOSED PERVIOUS PAVERS
- PROPOSED LIMITS OF AC OVERLAY
- PROPOSED LIMITS OF TRENCHING
- PROPOSED RIPRAP PER D-40
- PROPOSED CURB RAMP PER G-27
- 320 — EXISTING CONTOUR
- W — EXISTING WATER MAIN PER PLAN
- S — EXISTING SEWER MAIN PER PLAN
- EXISTING STORM DRAIN PER PLAN
- RW — EXISTING RELAIMED WATER MAIN PER PLAN

PRELIMINARY GRADING PLAN

SCALE: 1"=50'

0 50' 100' 150'

SCALE: 1"=50'

GENERAL NOTES

1. PUBLIC IMPROVEMENTS DAMAGED DURING CONSTRUCTION SHALL BE REMOVED AND REPLACED TO THE SATISFACTION OF THE CITY INSPECTOR.
2. EXISTING SURVEY MONUMENTS SHALL BE PROTECTED IN PLACE. ANY MONUMENT THAT IS DISTURBED OR DESTROYED SHALL BE REPLACED BY A LICENSED LAND SURVEYOR WHO SHALL FILE A CORNER RECORD OR RECORD OF SURVEY WITH THE COUNTY.
3. ALL EXISTING ONSITE STRUCTURES TO BE DEMOLISHED.
4. REFER TO LANDSCAPE PLAN FOR ONSITE TREES TO BE REMOVED. ADDITIONALLY, ANY LANDSCAPE WORK WITHIN THE RIGHT-OF-WAY SHALL BE MONITORED BY THE PARKS AND RECREATION DEPARTMENT.

ABBREVIATIONS

FF = FINISH FLOOR
FG = FINISH GRADE
FS = FINISH SURFACE
TC = TOP OF CURB
FL = FLOW LINE
TG = TOP OF GRATE
IE = INVERT ELEVATION
TW = TOP OF WALL
BW = BOTTOM OF WALL
HP = HIGH POINT
LP = LOW POINT

EASEMENT NOTES

1. PROPOSED PEDESTRIAN ACCESS EASEMENT TO THE CITY OF ENCINITAS
2. PROPOSED PRIVATE DRAINAGE EASEMENT

PREPARED BY:

PASCO LARET SUITER & ASSOCIATES

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J:\ACTIVE JOBS\3084 NOLEN COMMUNITIES FOX POINT\CIVIL\DRAWING\DISCRETIONARY PLANS\3084-CV-GRAD-02.DWG PLOTTED: 5/21/2020

APPENDIX N NOISE STUDY

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NOISE STUDY

Fox Point Farms
Case Nos. MULTI-3524-2019; CPP-3525-2019; SUB-3526-2019; DR-3528-2019; and CDPNF-3529-2019

City of Encinitas, CA

Prepared For:

Michael Baker International
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Prepared By:

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42428 Chisolm Trail
Murrieta, CA 92562

August 18, 2020

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GLOSSARY OF COMMON TERMS

Sound Pressure Level (SPL): a ratio of one sound pressure to a reference pressure (L_{ref}) of 20 µPa. Because of the dynamic range of the human ear, the ratio is calculated logarithmically by 20 log (L/L_{ref}).

A-weighted Sound Pressure Level (dBA): Some frequencies of noise are more noticeable than others. To compensate for this fact, different sound frequencies are weighted more.

Minimum Sound Level (L_{min}): Minimum SPL or the lowest SPL measured over the time interval using the A-weighted network and slow time weighting.

Maximum Sound Level (L_{max}): Maximum SPL or the highest SPL measured over the time interval the A-weighted network and slow time weighting.

Equivalent sound level (L_{eq}): the true equivalent sound level measured over the run time. Leq is the A-weighted steady sound level that contains the same total acoustical energy as the actual fluctuating sound level.

Day Night Sound Level (Ldn): Representing the Day/Night sound level, this measurement is a 24 –hour average sound level where 10 dB is added to all the readings that occur between 10 pm and 7 am. This is primarily used in community noise regulations where there is a 10 dB "Penalty" for nighttime noise. Typically, Ldn's are measured using A weighting.

Community Noise Exposure Level (CNEL): The accumulated exposure to sound measured in a 24-hour sampling interval and artificially boosted during certain hours. For Ldn, samples taken between 7 pm and 10 pm are boosted by 5 dB; samples taken between 10 pm and 7 am are boosted by 10 dB.

Octave Band: An octave band is defined as a frequency band whose upper band-edge frequency is twice the lower band frequency.

Third-Octave Band: A third-octave band is defined as a frequency band whose upper band-edge frequency is 1.26 times the lower band frequency.

Response Time (F, S,I): The response time is a standardized exponential time weighting of the input signal according to fast (F), slow (S) or impulse (I) time response relationships. Time response can be described with a time constant. The time constants for fast, slow and impulse responses are 1.0 seconds, 0.125 seconds and 0.35 milliseconds, respectively.

EXECUTIVE SUMMARY

This noise study has been completed to determine the noise impacts to and from the proposed Fox Point Farms project. The proposed project is located at 1150 Quail Gardens Drive, at the northwest corner of Leucadia Boulevard and Quail Gardens Drive in the City of Encinitas, California. The community would be situated on a 21.48-acre site and would consist of 53 for-sale cottages/carriage units/townhomes, 197 apartments, edible landscaping, community gardens, trails, a bocce court, social spaces, a community library, and a community recreation center. The project would also include a shared public/private agricultural amenity area including a farm-to-table restaurant, farm stand, event lawns, discovery garden, greenhouse and community event space, and an outdoor education patio. The northern portion of the project site would remain in agricultural use, serving as an organic farm operation.

Construction Noise Levels

The City of Encinitas requires that noise levels from construction activities do not exceed 75 dBA for more than eight hours, and that construction activity is limited to the hours of 7:00 a.m. to 7:00 p.m. on Mondays through Saturdays. Construction activity noise levels associated with the proposed project are only expected to be 75 dBA or greater at residential property lines when activity is taking place in close proximity to the property line, and at all other times will be less than 75 dBA. Due to the large area of the site, this scenario is only expected to take place for very brief periods of time throughout the day, and for this reason, construction limited to the twelve allowable hours of operation established within the code will comply with City of Encinitas noise regulations. Therefore, the 8 hour noise level is anticipated to be well below the 75 dBA threshold and would be considered less than significant.

Construction Vibration

The nearest vibration-sensitive uses are the residences located to the west of the project site, 60 feet or more from the proposed construction. The average vibration levels that would be experienced at the nearest vibration sensitive land uses to the west from temporary construction activities were found to be below the City thresholds for vibration.

Onsite Transportation Related Noise Levels

The results of this analysis indicate that future vehicle noise from adjacent Leucadia Boulevard and Quail Gardens Drive is the principal source of community noise that could impact the site. Based upon the findings, the outdoor use areas were determined to be below the City's Noise compatibility threshold of 70 dBA Ldn without attenuation measures. No noise walls are required to reduce traffic noise impacts at on-site noise sensitive receptors.

The City of Encinitas as part of its noise guidelines also states, consistent with Title 24 of the California Code of Regulations (CCR), that a project is required to perform an interior assessment on the portions of a project site where building façade noise levels are above the normally compatible noise level in order to ensure that acceptable interior noise levels can be achieved. The City of Encinitas' Noise Compatibility Guidelines require interior noise levels in residential structures to be reduced to 45 dBA Ldn. Thus, the proposed project would be required to prepare interior noise studies for these buildings located within 350 feet of the centerline of Leucadia Boulevard.

This interior noise report would identify the interior noise requirements based upon architectural and building plans. It should be noted; interior noise levels of 45 dBA Ldn can easily be obtained with conventional building construction methods and providing a closed window condition requiring a means of mechanical ventilation (e.g. air conditioning) for each building and upgraded windows for all sensitive rooms (e.g. bedrooms and living spaces).

Offsite Project Related Transportation Noise Levels

The proposed project would not create a direct impact of more than 3 dBA Ldn on any roadway segment and cause the roadway segment to exceed acceptable noise levels. Additionally, no cumulative noise increases of 3 dBA Ldn or more was found. Therefore, the proposed project's direct and cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses. No off-site noise walls would be required to reduce traffic related noise levels, and impacts would be less than significant.

Operational Noise Levels

The proposed operational noise levels are in compliance with the City's daytime 50 dBA property line standard and would also meet the most restrictive nighttime standard of 45 dBA. No impacts are anticipated and no further mitigation is required.

1.0 PROJECT INTRODUCTION

1.1 Purpose of this Study

The purpose of this noise study is to determine noise impacts, if any, to and from the proposed project (i.e. traffic, operations and construction). Should impacts be determined, the intent of this study would be to recommend suitable mitigation measures to reduce impacts to below a level of significance.

1.2 Project Location

The proposed Fox Point Farms project is located on a 21.48-acre project site on the northwest corner of Leucadia Boulevard and Quail Gardens Drive in the City of Encinitas, California. The project site is bordered by Sidonia Street and existing single family homes to the west, Leucadia Boulevard and existing single family homes to the south, open space to the north, and Quail Gardens Drive and the Encinitas Ranch Golf Course to the east. A general project vicinity map is shown in Figure 1–1.

1.3 Project Description

The community would be situated on a 21.48-acre site and would consist of 53 for-sale cottages/carriage units/townhomes, 197 apartments, edible landscaping, community gardens, trails, a bocce court, social spaces, a community library, and a community recreation center. The project would also include a shared public/private agricultural amenity area including a farm-to-table restaurant, farm stand, event lawns, discovery garden, greenhouse and community event space, and an outdoor education patio. Lastly, the northern portion of the project site would remain in agricultural use, serving as an organic farm operation.

The analysis includes a "Sidonia Secondary Access Option" to the proposed project which is limited to the project ingress/egress access only. Both the proposed project and the Option call for identical construction requirements, and the site development plan would be the same. The proposed project and Option are described as follows:

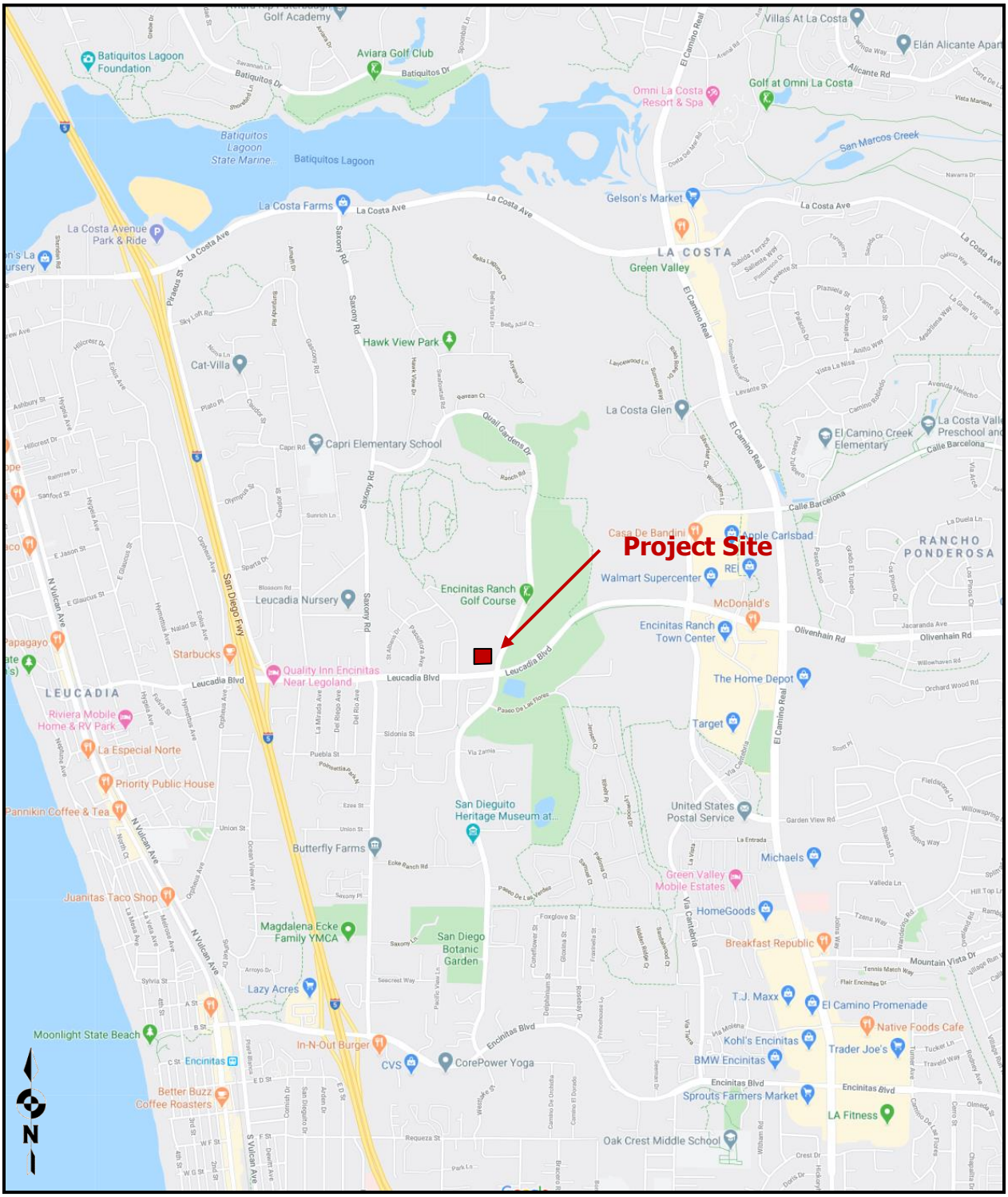
Proposed Project

1. *Full access at Quail Gardens Drive*
2. *Emergency access only along Sidonia Street*

Sidonia Secondary Access Option

1. *Full access at Quail Gardens Drive*
2. *Full access at Sidonia Street*

Figure 1-1: Project Vicinity Map



Source: (Google, 2020)

Figure 1-2: Proposed Project Site Plan



Source: (Nolen Communities, 2020)

2.0 FUNDAMENTALS

Noise is defined as unwanted or annoying sound which interferes with or disrupts normal activities. Exposure to high noise levels has been demonstrated to cause hearing loss. The individual human response to environmental noise is based on the sensitivity of that individual, the type of noise that occurs, and when the noise occurs.

Sound is measured on a logarithmic scale consisting of sound pressure levels known as a decibel (dB). The sounds heard by humans typically do not consist of a single frequency but of a broadband of frequencies having different sound pressure levels. The method for evaluating all the frequencies of the sound is to apply an A-weighting to reflect how the human ear responds to the different sound levels at different frequencies. The A-weighted sound level adequately describes the instantaneous noise whereas the equivalent sound level depicted as Leq represents a steady sound level containing the same total acoustical energy as the actual fluctuating sound level over a given time interval.

The Community Noise Equivalent Level (Ldn) is the 24-hour A-weighted average for sound, with corrections for evening and nighttime hours. The corrections require an addition of 5 decibels to sound levels in the evening hours between 7 p.m. and 10 p.m. and an addition of 10 decibels to sound levels at nighttime hours between 10 p.m. and 7 a.m. These additions are made to account for the increased sensitivity during the evening and nighttime hours when sound appears louder.

A vehicles noise level is a combination of the noise produced by a vehicle's engine, exhaust, and tires. The cumulative traffic noise levels along a roadway segment are based on three primary factors: the amount of traffic, the travel speed of the traffic, and the vehicle mix ratio or number of medium and heavy trucks. The intensity of traffic noise is increased by higher traffic volumes, greater speeds, and increased number of trucks.

Because mobile/traffic noise levels are calculated on a logarithmic scale, a doubling of the traffic noise or acoustical energy results in a noise level increase of 3 dBA. Therefore, the doubling of the traffic volume, without changing the vehicle speeds or mix ratio, results in a noise increase of 3 dBA. Mobile noise levels radiate in an almost oblique fashion from the source and drop off at a rate of 3 dBA for each doubling of distance under hard site conditions and at a rate of 4.5 dBA for soft site conditions. Hard site conditions consist of concrete, asphalt, and hard pack dirt while soft site conditions exist in areas having slight grade changes, landscaped areas, and vegetation. Alternately, fixed/point sources radiate outward uniformly as it travels away from the source. Their sound levels attenuate or drop off at a rate of 6 dBA for each doubling of distance.

The most effective noise reduction methods consist of controlling the noise at the source and blocking the noise transmission with barriers. Any or all of these methods may be required to

reduce noise levels to an acceptable level. To be effective, a noise barrier must have enough mass to prevent significant noise transmission through it and high enough and long enough to shield the receiver from the noise source. A safe minimum surface weight for a noise barrier is 3.5 pounds/square foot (equivalent to 3/4-inch plywood), and the barrier must be carefully constructed so that there are no cracks or openings.

Barriers constructed of wood or as a wooden fence must have minimum design considerations as follows: the boards must be ¾ inch thick and free of any gaps or knot holes. The design must also incorporate either overlapping the boards at least 1 inch or utilizing a tongue-and-grove design for this to be achieved.

3.0 REGULATORY FRAMEWORK

3.1 State of California

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the "Land Use Compatibility for Community Noise Environments Matrix." The matrix allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

The State of California has established noise insulation standards as outlined in Title 24 and the Uniform Building Code (UBC) which in some cases requires acoustical analyses to outline exterior noise levels and to ensure interior noise levels do not exceed the interior threshold. The State mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services.

3.2 Municipal Code

Construction Noise

Section 9.32.410 of the City of Encinitas Municipal Code restricts the operation of construction equipment to the hours of 7 a.m. to 7 p.m., Mondays through Saturdays. The Municipal Code also states that it is unlawful to operate construction equipment that exceeds a noise level of 75 dBA for more than eight hours during any 24-hour period when measured at residential property lines (City of Encinitas Municipal Code).

Operational Noise

Section 30.40 of the City of Encinitas Municipal Code contains noise limits that would apply to noise sources located on the project site, including air conditioning units. The Municipal Code specifies noise limits based on the zoning of the properties in question. Properties zoned RR to R-8 have noise limits of 50 dBA between the hours of 7 a.m. and 10 p.m., and 45 dBA between the hours of 10 p.m. and 7 a.m. Properties zoned R-11 to R-30 have noise limits of 55 dBA between the hours of 7 a.m. and 10 p.m., and 50 dBA between the hours of 10 p.m. and 7 a.m. Commercial zones have noise limits of 60 dBA between the hours of 7 a.m. and 10 p.m., and 55 dBA between the hours of 10 p.m. and 7 a.m. As air conditioning equipment may be operational during nighttime hours, the more stringent nighttime noise limits would also apply at surrounding properties. The exterior property line noise limits are shown in Table 3-1 below.

Table 3-1: City of Encinitas Exterior Noise Limits

Adjacent Zone	Noise Level [dB(A)]	
	7:00 a.m. to 10:00 p.m.	10:00 p.m. to 7:00 a.m.
Rural Residential (RR), Rural Residential-1 RR-1), Rural Residential-2 (RR-2), Residential-3 (R-3), Residential-5 (R-5), Residential-8 (R-8)	50	45
Residential-11 (R-11), Residential Single Family-11 (RS-11), Residential-15 (R-15), Residential-20 (R-20), Residential-25 (R-25), Mobile Home Park (MHP)	55	50
Office Professional (OP), Limited Local Commercial (LLC), Local Commercial (LC), General Commercial (GC), Limited Visitor Serving Commercial (L-VSC), Visitor Serving Commercial (VSC)	60	55
Light Industrial (L-I), Business Park (BP)	60	55
Source: City of Encinitas Municipal Code 30.40.010(A)		

As stated in Section 30.40.10 (B), every use shall be operated so that the ground vibration generated at any time and measured at any point along the lot line of the lot on which the use is located shall not be perceptible and shall not exceed the limits of any adjacent zone. The property line ground vibration limits are summarized in Table 3-2.

Table 3-2: City of Encinitas Ground Vibration Limits

Adjacent Zone	Vibration in Inches per Second	
	Impact	Steady-State
Residential	0.006	0.03
Commercial	0.010	0.05
Light Industrial	0.040	0.020
Public/Semi-Public	0.010	0.05
Source: City of Encinitas Municipal Code 30.40.010(B)		

3.3 Noise Element

Onsite Transportation Noise (Land Use Compatibility)

The City of Encinitas General Plan Noise Element states that the Noise and Land Use Compatibility Guidelines, (shown in Figure 2 of the Noise Element and provided below in Figure 3-1 in this report) and the accompanying discussion should set forth the criteria for siting new development in the City of Encinitas (City of Encinitas General Plan, 1994). These guidelines state that any project which would be located in a normally unacceptable noise exposure area, based on the Land Use Compatibility Guidelines, shall require an acoustical analysis. Noise mitigation in the future shall be incorporated in the project as needed. As a condition of approval of a project, the City may require post-construction noise monitoring and sign off by an acoustician to ensure that

City requirements have been met.

Pursuant to the Noise and Land Use Compatibility Guidelines (Figure 3-1 below), exterior noise levels ranging up to 60 dBA Ldn are classified as "normally acceptable" for single-family residential development based upon the assumption that the homes are built with normal conventional construction. Noise levels ranging from 60 to 70 dBA Ldn are "conditionally acceptable". "Conditionally acceptable" means that noise levels are acceptable only when a detailed noise analysis is conducted and needed noise insulation features are included in the design.

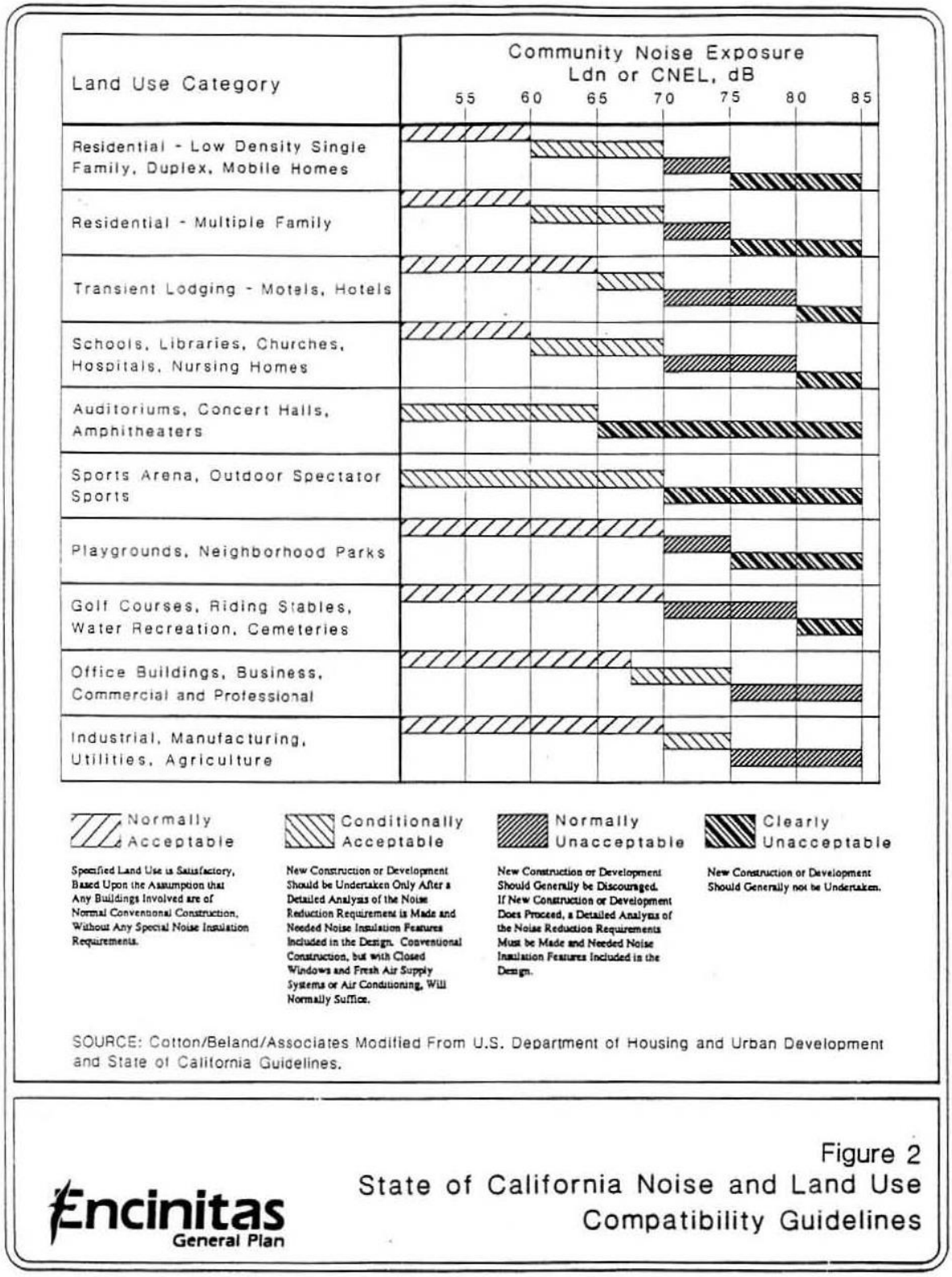
Conventional construction with closed windows and a fresh air supply system or air conditioning will normally suffice as "acceptable noise insulation" features. Noise levels in the 70 to 75 dBA Ldn range are classified as "generally unacceptable" and new construction or development is discouraged, but may proceed if a detailed noise analysis is conducted and needed noise insulation features included in the design. For commercial and industrial uses noise levels up to 70 dBA Ldn are normally acceptable; noise levels between 70-80 dBA Ldn are generally unacceptable and development of these land uses in noise environments that exceed 75 dBA Ldn are discouraged.

Interior noise levels should be mitigated to a maximum of 45 dBA Ldn in all habitual rooms when the exterior of the residence are exposed to levels of 60 dBA Ldn or more. If windows and doors are required to be closed to meet the interior noise standard, then mechanical ventilation shall be provided per City requirements.

Offsite Transportation Noise

In accordance with CEQA, a project should not have a noticeable adverse impact on the surrounding environment. Noise level changes greater than 3 dBA, or a doubling of the acoustic energy, are often identified as audible and considered potentially significant, while changes less than 3 dBA are typically not discernible. For the purposes for this analysis, a direct and cumulative roadway noise impact would be considered significant if the project increases noise levels at a noise sensitive land use 3 dBA Ldn and if the noise level increases above an unacceptable noise level per the City's General Plan.

Figure 3-1: Land Use - Noise Compatibility Guidelines



4.0 EXISTING NOISE ENVIRONMENT

Noise measurements were taken on January 14, 2020 using Larson-Davis Model Spark 706 Type 2 precision sound level meters, programmed in "slow" mode, to record noise levels in "A" weighted form. The sound level meters and microphones were mounted on a tripod, five feet above the ground and equipped with a windscreen during all measurements. The sound level meters were calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 150.

Monitoring Location 1 (M1) was located roughly 40 feet from the centerline of Sidonia Street. Monitoring Location 2 (M2) was located roughly 60 feet from the centerline of Leucadia Boulevard. The noise monitoring locations are provided graphically in Figure 4-1. The results of the noise level measurement are presented in Table 4-1. The noise measurement was monitored for a time period of 9 hours between 7:00 am and 4:00 pm. The existing noise levels in the project area consisted primarily of traffic from adjacent roadways. The ambient Leq noise level measured in the area of the project site during the afternoon hours was found to be between 51.8 and 66.0 dBA Leq based on the proximity to the roadways. The statistical indicators Lmax, Lmin, L10, L50 and L90, are given for the monitoring locations. As can be seen from the L90 data, 90% of the time the noise level is approximately 40.5 to 53.5 dBA from the roadways.

The monitoring locations were chosen based on site access, potential noise exposure from existing traffic and community activities. As can be seen by the results, noise levels drop as the distance increases from Leucadia Boulevard.

Table 4-1: Measured Ambient Noise Levels

Measurement Identification	Description	Time	Noise Levels (dBA)					
			Leq	Lmax	Lmin	L10	L50	L90
M1	Sidonia Street	7:00am – 4:00pm	51.8	76.4	39.0	54.5	44.5	40.5
M2	Leucadia Avenue	7:00am – 4:00pm	66.0	91.2	43.2	69.5	63.5	53.5
Source: Ldn Consulting, Inc. January 14, 2020								

Figure 4-1: Ambient Noise Monitoring Locations



5.0 POTENTIAL IMPACTS

5.1 Construction Noise Levels

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment includes haul trucks, water trucks, graders, dozers, loaders, and scrapers and can reach relatively high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of construction to normal weekday working hours.

The U.S. Environmental Protection Agency (U.S. EPA) has compiled data regarding the noise generating characteristics of specific types of construction equipment. Noise levels generated by heavy construction equipment can range from 60 dBA to in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 75 dBA measured at 50 feet from the noise source to the receptor would be reduced to 69 dBA at 100 feet from the source to the receptor, and reduced to 63 dBA at 200 feet from the source.

The City of Encinitas requires that noise levels from construction activity do not exceed 75 dBA for more than eight hours, and that construction activity is limited to the hours of 7:00 a.m. to 7:00 p.m. on Mondays through Saturdays. As detailed in Table 5-1, instantaneous noise levels from construction equipment during grading activities are expected to range from 73 to 79 dBA at 50 feet from the equipment.

Potential Noise Impact Identification

Based on the EPA noise emissions, empirical data and the amount of equipment needed, worst-case noise levels from the construction equipment operations would occur during the base operations (grading/site preparation). The construction schedule identifies that grading activities will occur in a single phase all at the same time, with anticipated equipment including an excavator, a grader, a rubber tire dozer, and three tractors/backhoes. Due to physical constraints and normal site preparation operations, most of the equipment will be spread out over the site. A list of equipment used during grading is summarized in Table 5-1.

Table 5-1: Construction Noise Levels

Construction Equipment	Quantity	Source Level @ 50-Feet (dBA)*	Cumulative Noise Level @ 50-Feet (dBA)
Tractor/Backhoe	3	72	76.8
Dozer	1	74	74.0
Loader/Grader	1	73	73.0
Excavator	1	79	79.0
*Source: U.S. Environmental Protection Agency (U.S. EPA), 1971 and Empirical Data			

The City of Encinitas requires that noise levels from construction activity do not exceed 75 dBA for more than eight hours, and that construction activity is limited to the hours of 7:00 a.m. to 7:00 p.m. on Mondays through Saturdays. As shown in Table 5-1, instantaneous noise levels from construction equipment during grading activities are expected to range from 73 to 79 dBA at 50 feet from the equipment. At any given time, a piece of construction equipment would only be within 50 feet of a sensitive receptor for a very short duration, after which it would move to another part of the project site, further from existing sensitive receptors.

Construction activity noise levels are only expected to be 75 dBA or greater at residential property lines when activity is taking place in close proximity to the property line, and at all other times will be less than 75 dBA. Due to the large area of the site, this scenario is only expected to take place for very brief periods of time throughout the day, and for this reason, construction limited to the twelve allowable hours of operation established within the code will comply with City of Encinitas noise regulations. Therefore, the 8 hour noise level is anticipated to be below the 75 dBA threshold and would be considered less than significant.

Potential Vibration Impact Identification

Increases in groundborne vibration and noise levels attributable to the proposed project would be primarily associated with short-term construction-related activities. Construction on the project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

The nearest vibration-sensitive uses are the residential uses located to the east of the project site, 60 feet or more from the proposed construction across Sidonia Street. Table 5-2 lists the average vibration levels that would be experienced at the nearest vibration sensitive land uses to the east from temporary construction activities based on vibrations. Loaded trucks will be traveling on site and were assessed at a minimum distance of 60 feet from the proposed

construction activities to be conservative. No impactive vibration sources (i.e., pile drivers) are anticipated and therefore the project would not exceed the impact thresholds.

Table 5-2: Vibration Levels from Construction Activities (Nearest Receptors)

Equipment	Approximate Velocity Level at 25 Feet (VdB)	Approximate RMS Velocity at 25 Feet (in/sec)[1]	Approximate RMS Velocity at 60 Feet (in/sec)[2]
Small bulldozer	58	0.003	0.0008
Jackhammer	79	0.035	0.0094
Loaded trucks	86	0.076	0.0204
Large bulldozer	87	0.089	0.0239
		City Criteria	0.03
		Significant Impact?	**No**

[1] RMS Velocity provided by the (FTA, 2006)
[2] PPV at Distance D = PPVref x $(25/D)^{1.5}$ provided by the (FTA, 2006)

5.2 Transportation Noise Levels

Onsite Transportation Related Noise Levels

The primary source of noise impacts to the project site is from vehicular noise from adjacent Leucadia Boulevard and Quail Gardens Drive. The projected roadway noise levels from vehicular traffic were calculated using the methods in the Highway Noise Model published by the Federal Highway Administration (FHWA, 1978). The FHWA Model uses the traffic volume, vehicle mix, speed, and roadway geometry to compute the equivalent noise level. A spreadsheet calculation was used which computes equivalent noise levels for each of the time periods used in the calculation of Ldn. Weighting these equivalent noise levels and summing them gives the Ldn for the traffic projections.

Table 5-3 presents the roadway parameters used in the analysis including the average daily traffic volumes, speeds and the traffic flow distribution (vehicle mix). The vehicle mix provides the distribution percentages of automobile, medium and heavy trucks for input into the FHWA Model.

Table 5-3: Traffic Parameters

Source	Average Daily Traffic (ADT)[1]	Peak Hour Volume [2]	Vehicle Speeds (MPH)	Vehicle Mix %		
				Auto	Medium Trucks	Heavy Trucks
Leucadia Boulevard	43,200	4,320	45	98.0	1.0	1.0
Quail Gardens Drive	5,500	550	40	99.0	0.5	0.5

[1] Source: Fox Point Farms Transportation Impact Study, Chen Ryan (2020)
[2] 10% of the ADT
[3] Source: Typical roadway mix on local roadways

Based on the exterior noise model for the roadways, the worst-case exterior noise level at the building facades nearest the roadways is 73 dBA Ldn along Leucadia Boulevard and 62 dBA Ldn along Quail Gardens Drive at a distance of 50-feet from the centerline. The model does not take into account any noise reductions for existing or proposed structures, barriers or topographic features.

The nearest outdoor private use area is located in the southwest portion of the project site approximately 90-100 feet from Leucadia Boulevard and 500 feet from Quail Gardens Drive. Based on the increase distance from the roadways, the noise level would be reduced to a worst case exterior noise level of 69 dBA Ldn. The modeling results are provided as ***Attachment A***.

The nearest outdoor common use area is the community recreation center, located in the southeast portion of the project site approximately 125 feet north of Leucadia Boulevard and 65 feet west of Quail Gardens Drive. Based on the increase distance from the roadways, the noise level would be reduced to a worst-case exterior noise level of 68 dBA Ldn at the ground levels. Therefore, no mitigation is required to meet the City's 70 dBA Ldn noise threshold to be considered "conditionally acceptable".

The City of Encinitas noise guidelines also state, consistent with Title 24 of the California Code of Regulations (CCR), that a project is required to perform an interior assessment on the portions of a project site where building façade noise levels are above the normally compatible noise level in order to ensure that acceptable interior noise levels can be achieved. The buildings shown in Figure 5-1 would be exposed to noise levels of 68 dBA Ldn at the ground levels and up to 70 dBA Ldn at the upper floor facades; thus, the proposed project would be required to prepare interior noise studies for these buildings located within 350 feet of the centerline of Leucadia Boulevard. An interior noise analysis is provided below based on the current architectural plans.

Figure 5-1: Building Facades above 60 dBA Ldn



The methodology used to determine the resultant interior noise levels is based upon the exterior noise level minus the sound transmission loss as identified in the American Society of Testing and Materials (ASTM) guidelines: E413 &E90. Standard building construction will provide a noise reduction of approximately 12-15 dBA with a windows open condition and a minimum 20 dBA noise reduction with the windows closed. The exterior noise levels at the proposed structures calculated in terms of dBA are converted to the six octave band sound pressure levels between: 125 - 4000 Hertz.

Acoustical modeling of the proposed project dwelling units was performed in accordance with the above guidelines and included combining the transmission loss for each of the building components that will reduce the interior noise levels. Building components typically include the windows, exterior doors, and exterior walls. The total noise reduction is dependent upon the transmission loss of each building component, their subsequent surface area, quality of the building/construction materials, a building façade and angle correction.

The interior noise level is also dependent on the acoustical energy absorbed within the room based upon the Noise Reduction Coefficients (NRC). NRC is a scalar representation of the amount of sound energy absorbed upon striking a particular surface and the arithmetic value average of sound absorption coefficients indicating a material's ability to absorb sound. The absorption coefficients for individual surface areas such as carpet, drywall and furnishings are used to calculate the interior room effects. The calculated building noise reduction includes both the room absorption characteristics and the transmission loss from the exterior wall assembly.

The interior noise reduction calculations were performed using Ldn's interior noise model. The model converts the exterior sound level to octave band frequencies and accounts for the transmission loss, correction factors and room absorption. The floor plans used for this analysis were provided by the project applicant's architects (Starck Architecture and Steinberg Hart).

The building façade noise levels were determined to be as high as 70 dBA CNEL at buildings directly adjacent to Leucadia Boulevard. The buildings located farther back from Leucadia Boulevard would have lower exterior noise levels as described above. Basic calculations show that a windows open condition will typically reduce the interior noise levels 12-15 dBA CNEL and not provide adequate interior noise mitigation. To meet the 45 dBA CNEL interior noise standard, an overall minimum interior noise level reduction of roughly 18 dBA CNEL is needed for the proposed project. Therefore, a closed window condition is required to reduce interior noise levels to comply with CCR Title 24 and City of Encinitas requirements. The windows/doors closed condition does not require the windows or doors to be non-operable but does requires that mechanical ventilation is installed to move air within the structure and control temperatures when the windows are closed. The mechanical ventilation must meet the jurisdictional requirements for these dwelling units.

The sound transmission class (STC) is a method of rating how well wall partitions, such as doors and windows, reduce sound transmission. A higher number indicates better sound than a lower number. Based on numerous studies and efficiency standards in current residential Title 24 standards, standard assembly windows have a STC of 28. Based on information from the project applicant's architects, the STC for the proposed project would be approximately 30. The STC and transmission losses for all glass assemblies are provided in Table 5-4. The modeled results with an anticipated interior noise level of 45 dBA CNEL or less are provided as an ***Attachment B*** to this report.

No interior noise impacts are anticipated with the incorporation of the STC ratings provided in Table 5-4, which are consistent with the construction type proposed based on the architectural plans.

Table 5-4: Sound Transmission Class Ratings

Assembly	STC Rating[1]	Octave Band Transmission Loss (Hz)[1]					
		125	250	500	1000	2000	4000
Operable Windows	**30**	20	20	26	35	39	37
Fixed Window	**30**	20	21	26	34	38	29
Glass Doors	**30**	22	20	29	33	39	30
[1] *STC and Octave ratings used in Model*							

Offsite Project Related Transportation Noise Levels

The offsite project related roadway segment noise levels projected in this report were calculated using the methods in the Highway Noise Model published by the Federal Highway Administration (FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108, December 1978). The FHWA Model uses the traffic volume, vehicle mix, speed, and roadway geometry to compute the equivalent noise level. A spreadsheet calculation was used which computes equivalent noise levels for each of the time periods used in the calculation of Ldn. Weighting these equivalent noise levels and summing them gives the Ldn for the traffic projections. The noise contours are then established by iterating the equivalent noise level over many distances until the distance to the desired noise contour(s) are found.

Because mobile/traffic noise levels are calculated on a logarithmic scale, a doubling of the traffic noise or acoustical energy results in a noise level increase of 3 dBA. Therefore, the doubling of the traffic volume, without changing the vehicle speeds or mix ratio, results in a noise increase of 3 dBA. Mobile noise levels radiate in an almost oblique fashion from the source and drop off at a rate of 3 dBA for each doubling of distance under hard site conditions and at a rate of 4.5 dBA for soft site conditions. Hard site conditions consist of concrete, asphalt, and hard pack dirt, while soft site conditions exist in areas having slight grade changes, landscaped areas, and vegetation.

The future traffic noise model utilizes a typical City vehicle mix 96% Autos, 2% Medium Trucks, and 2% Heavy Trucks for all analyzed roadway segments. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA Model.

Community noise level changes greater than 3 dBA are often identified as audible and considered potentially significant, while changes less than 1 dBA will not be discernible to average residents. In the range of 1 to 3 dBA, residents who are very sensitive to noise may perceive a slight change. There is no scientific evidence available to support the use of 3 dBA as the significance threshold; community noise exposures are typically over a long time period rather than the immediate comparison made in a laboratory situation. Therefore, the level at which changes in community noise levels become discernible is likely greater than 1 dBA, and 3 dBA appears to be appropriate for most people.

For the purposes of this analysis, a direct or cumulative roadway noise impacts would be considered significant if the project increases noise levels for a noise sensitive land use by 3 dBA Ldn and if the project increases noise levels above an unacceptable noise level per the City's Noise Compatibility Guidelines. Both the proposed project related direct and cumulative roadway noise level increases are analyzed below.

Direct Traffic Noise Levels

To determine if direct offsite noise level increases associated with the development of the proposed project will create noise impacts, the noise levels for the existing conditions were compared with the noise level increase from when the proposed project is built. Utilizing the project's traffic assessment (Chen Ryan, 2020) noise contours were developed for the following traffic scenarios:

Existing: Current day noise conditions without construction of the project.
Existing Plus Project: Current day noise conditions plus the completion of the project.
Existing vs. Existing Plus Project: Comparison of the project related noise level increases.

The noise levels and reference distances to the 60 dBA Ldn contours for the roadways in the vicinity of the project site are given in Table 5-5 for the Existing Scenario and in Table 5-6 for the Existing Plus Project Scenario. Table 5-7 presents the comparison of the Existing Year with and without project related noise levels. Note that the values given do not take into account the effect of any noise barriers, structures, or topography that may further reduce roadway noise levels.

Table 5-5: Existing Noise Levels without Project

Roadway Segment	ADT[1]	Vehicle Speeds (MPH)[1]	Noise Level @ 50-Feet (dBA Ldn)	60 dBA Ldn Contour Distance (Feet)
Leucadia Avenue				
I-5 Northbound Ramps to Urania Ave	32,227	40	72.3	330
Urania Ave to Saxony Rd	32,403	40	72.3	331
Saxony Rd to Sidonia St	34,249	40	72.6	344
Sidonia St to Quail Gardens Dr	34,747	40	72.6	347
Quail Gardens Dr to Garden View Rd	37,734	40	73.0	366
Garden View Rd to Town Center Pl	28,365	40	71.7	303
Town Center Pl to El Camino Real	29,743	40	71.9	313
Ranch Rd to Project Driveway #2	2,193	35	58.6	40
Project Driveway #2 to Leucadia Blvd	2,193	35	58.6	40
[1] Source: Project Traffic study prepared by Chen Ryan, 2020				

Table 5-6: Existing + Project Noise Levels

Roadway Segment	ADT[1]	Vehicle Speeds (MPH)[1]	Noise Level @ 50-Feet (dBA Ldn)	60 dBA Ldn Contour Distance (Feet)
Leucadia Avenue				
I-5 Northbound Ramps to Urania Ave	32,879	40	72.4	334
Urania Ave to Saxony Rd	33,073	40	72.4	336
Saxony Rd to Sidonia St	35,083	40	72.7	349
Sidonia St to Quail Gardens Dr	35,517	40	72.7	352
Quail Gardens Dr to Garden View Rd	38,354	40	73.0	371
Garden View Rd to Town Center Pl	28,789	40	71.8	306
Town Center Pl to El Camino Real	30,103	40	72.0	315
Quail Gardens Drive				
Ranch Rd to Project Driveway #2	2,209	35	58.6	40
Project Driveway #2 to Leucadia Blvd	3,189	35	60.2	52
[1] Source: Project Traffic study prepared by Chen Ryan, 2020				

Based on Table 5-7, the overall roadway segment noise levels will increase from 0.1 dBA Ldn to 1.6 dBA Ldn with the development of the proposed project. The proposed project does not create a direct noise increase of more than 3 dBA Ldn on any roadway segments. Therefore, the proposed project's direct contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

Table 5-7: Existing vs. Existing + Project Noise Levels

Roadway Segment	Existing Noise Level @ 50-feet (dBA Ldn)	Existing + Project Noise Level @ 50-feet (dBA Ldn)	Difference (dBA Ldn)
Leucadia Avenue			
I-5 Northbound Ramps to Urania Ave	72.3	72.4	0.1
Urania Ave to Saxony Rd	72.3	72.4	0.1
Saxony Rd to Sidonia St	72.6	72.7	0.1
Sidonia St to Quail Gardens Dr	72.6	72.7	0.1
Quail Gardens Dr to Garden View Rd	73.0	73.0	0.1
Garden View Rd to Town Center Pl	71.7	71.8	0.1
Town Center Pl to El Camino Real	71.9	72.0	0.1
Quail Gardens Drive			
Ranch Rd to Project Driveway #2	58.6	58.6	0.0
Project Driveway #2 to Leucadia Blvd	58.6	60.2	1.6

Cumulative Traffic Noise Levels

To determine if cumulative off-site noise level increases associated with the development of the proposed project and other planned or permitted projects in the vicinity will create noise impacts. The noise levels for the near-term Project Buildout and other planned and permitted projects were compared with the existing conditions. Utilizing the project's traffic assessment (Source: Chen Ryan, 2020) noise contours were developed for the following traffic scenarios:

Existing: Current day noise conditions without construction of the project.
Existing Plus Cumulative Projects Plus Project: Current day noise conditions plus the completion of the project and the completion of other permitted, planned projects or approved ambient growth factors.
Existing vs. Existing Plus Cumulative Plus Project: Comparison of the existing noise levels and the related noise level increases from the combination of the project and all other planned or permitted projects in the vicinity of the site.

The existing noise levels and reference distances to the 60 dBA Ldn contours for the roadways in the vicinity of the project site are given in Table 5-5 above for the Existing Scenario. The near-term cumulative noise conditions are provided in Table 5-8 below. No noise barriers or topography that may affect noise levels were incorporated in the calculations. The overall roadway segment noise levels will increase from 0.1 dBA Ldn to 1.6 dBA Ldn with the development of the proposed project and other planned or approved projects as shown in Table 5-9 below. The project plus cumulative projects do not create a noise increase of more than 3 dBA Ldn on any roadways segment. Therefore, the proposed project's contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

Table 5-8: Existing + Near Term + Project Noise Levels

Roadway Segment	ADT[1]	Vehicle Speeds (MPH)[1]	Noise Level @ 50-Feet (dBA Ldn)	60 dBA Ldn Contour Distance (Feet)
Leucadia Avenue				
I-5 Northbound Ramps to Urania Ave	33,362	40	72.4	338
Urania Ave to Saxony Rd	33,550	40	72.5	339
Saxony Rd to Sidonia St	35,534	40	72.7	352
Sidonia St to Quail Gardens Dr	35,960	40	72.8	355
Quail Gardens Dr to Garden View Rd	38,770	40	73.1	373
Garden View Rd to Town Center Pl	29,204	40	71.9	309
Town Center Pl to El Camino Real	30,520	40	72.1	318
Quail Gardens Drive				
Ranch Rd to Project Driveway #2	2,226	35	58.6	41
Project Driveway #2 to Leucadia Blvd	3,206	35	60.2	52
[1] Source: Project Traffic study prepared by Chen Ryan, 2020				

Table 5-9: Existing vs. Near Term + Project Noise Levels

Roadway Segment	Existing Noise Level @ 50-feet (dBA Ldn)	Existing + Project + Near Term Noise Level @ 50-feet (dBA Ldn)	Difference (dBA Ldn)
Leucadia Avenue			
I-5 Northbound Ramps to Urania Ave	72.3	72.4	0.2
Urania Ave to Saxony Rd	72.3	72.5	0.2
Saxony Rd to Sidonia St	72.6	72.7	0.2
Sidonia St to Quail Gardens Dr	72.6	72.8	0.1
Quail Gardens Dr to Garden View Rd	73.0	73.1	0.1
Garden View Rd to Town Center Pl	71.7	71.9	0.1
Town Center Pl to El Camino Real	71.9	72.1	0.1
Quail Gardens Drive			
Ranch Rd to Project Driveway #2	58.6	58.6	0.1
Project Driveway #2 to Leucadia Blvd	58.6	60.2	1.6

Sidonia Secondary Access Option

The proposed project includes an option that would include a project driveway (secondary access) on Sidonia Street. Under this Option, 622 trips to and from the project site would access the development from Sidonia Street according to the project's traffic study. The same methodology utilized above was applied to determine if cumulative off-site noise level increases associated with the development of the proposed project and other planned or permitted projects in the vicinity will create noise impacts. The noise levels for the near-term Project Buildout and other planned and

permitted projects were compared with the existing conditions. The overall roadway segment noise levels would increase 2.6 dBA Ldn with the development of the proposed project and other planned or approved projects, as shown in Table 5-10 below. The project plus cumulative projects do not create a noise increase of more than 3 dBA Ldn on any roadways segment. Additionally, the future roadway noise levels were determined to be below 60 dBA Ldn and the 60 dBA Ldn noise contour would be within 30 feet of the roadway center line. Therefore, under this Sidonia Secondary Access Option, the proposed project's contributions to off-site roadway noise increases would not cause any significant impacts to any existing or future noise sensitive land uses.

Table 5-10: Existing vs. Existing + Project Noise Levels (Sidonia Secondary Access Option)

Roadway Segment	Existing Noise Level @ 50-feet (dBA Ldn)	Existing + Project Noise Level @ 50-feet (dBA Ldn)	Difference (dBA Ldn)
Sidonia Street			
Project Driveway #1 to Leucadia Blvd	53.9	56.5	2.6

Transportation Noise Conclusions

Onsite Transportation Related Noise Levels

The results of this analysis indicate that future vehicle noise from adjacent Leucadia Avenue and Quail Gardens Drive is the principal source of community noise that could impact the project site. Based upon the findings, the outdoor use areas were determined to be below the City's Noise compatibility threshold without attenuation measures.

The City of Encinitas as part of its noise guidelines also states, consistent with Title 24 of the California Code of Regulations (CCR), a project is required to perform an interior assessment on the portions of a project site where building façade noise levels are above the normally compatible noise level in order to ensure that acceptable interior noise levels can be achieved. The City of Encinitas' Noise Compatibility Guidelines require interior noise levels in residential structures to be reduced to 45 dBA Ldn. Please refer to Figure 5-1 for the buildings that require an interior noise assessment, and refer to Table 5-4 for the results of the interior noise assessment based on the project applicant's architectural plans and anticipated STC ratings.

As shown, interior noise levels of 45 dBA Ldn can easily be obtained with conventional building construction methods and providing a closed window condition requiring a means of mechanical ventilation (e.g. air conditioning) for each building and upgraded windows for all sensitive rooms (e.g. bedrooms and living spaces).

Offsite Project Related Transportation Noise Levels

The proposed project will not create a direct impact of more than 3 dBA Ldn on any roadway segment and no cumulative noise increase of 3 dBA Ldn or more were found. Therefore, the proposed project's direct and cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

5.3 Operational Noise

Section 30.40 of the City of Encinitas Municipal Code contains noise limits that would apply to noise sources located on the project site, including air conditioning units. The Municipal Code specifies noise limits based on the zoning of the properties in question. Properties zoned RR to R-8 have noise limits of 50 dBA between the hours of 7 a.m. and 10 p.m., and 45 dBA between the hours of 10 p.m. and 7 a.m. Properties zoned R-11 to R-30 have noise limits of 55 dBA between the hours of 7 a.m. and 10 p.m., and 50 dBA between the hours of 10 p.m. and 7 a.m. Commercial zones have noise limits of 60 dBA between the hours of 7 a.m. and 10 p.m., and 55 dBA between the hours of 10 p.m. and 7 a.m. As air conditioning equipment may be operational during nighttime hours, the more stringent nighttime noise limits would also apply at surrounding properties.

This section examines the potential stationary noise source levels associated with the development and operation of the proposed project. Noise from a fixed or point source drops off at a rate of 6 dBA for each doubling of distance, which means that a noise level of 70 dBA at 5-feet would be 64 dBA at 10-feet and 58 dBA at 20-feet.

HVAC

A review of the proposed project indicates that noise sources from the mechanical ventilation system (HVAC) are a potential source of stationary noise. Each residential unit would have a HVAC unit for temperature control, as discussed in more detail below. The most sensitive off-site property lines to the operational noise sources, by distance and orientation, are the property lines at the existing single family homes to the west of Sidonia Street. This section analyzes the property line to determine the worst case noise levels. All other off-site property lines are located further from the noise sources or have less restrictive property line limits. The proposed project must meet the most restrictive daytime and evening standards of 50.0 dBA and 45.0 dBA at the residential property lines per the City of Encinitas Municipal Code for R-3 zoning. To determine the noise level reductions from the building parapets that shield the HVAC units (on residential apartment buildings), Fresnel Barrier Reduction Calculations were utilized at the noise source.

Ground-mounted mechanical ventilation units (HVAC) will be installed in the proposed side yards of the for-sale cottage/carriage/townhome residential units. To evaluate the HVAC noise impacts,

the analysis utilized reference noise levels provided by Carrier which show a noise level of 70-74 dBA for 3 to 5 ton units. To predict the worst-case future noise environment, a continuous reference noise level of 74 dBA at 3-feet was used to represent the ground mounted mechanical ventilation system for each unit. Even though the mechanical ventilation system will cycle on and off throughout the day, this approach presents the worst-case noise condition. These units are designed to provide cooling during the peak summer daytime periods, and it is unlikely that all the units will be operating continuously and the resulting hourly noise level would be lower.

Additionally, five decibels of attenuation is allowed when the buildings obstruct more than 65% of the line of sight. The proposed buildings will block the HVAC units by more than 65%, therefore, a factor of 5 dBA was taken into account. Also based on the unit separation, only two adjacent HVAC units noise levels would combine at any given offsite location.

As calculated in Table 5-11, the proposed HVAC operational noise levels are in compliance with the City's daytime 50 dBA property line standard and would also meet the most restrictive nighttime standard of 45 dBA. No impacts are anticipated and no further mitigation is required.

Table 5-11: Project HVAC Noise Levels (Western Property Line)

Distance to Nearest Observer Location (Feet)	Hourly Reference Noise Level (dBA)	Noise Source Reference Distance (Feet)	Noise Reduction Due to Distance (dBA)	Reduction Due to Buildings (dBA)	Noise Level at Property Line (dBA)	Quantity	Property Line Cumulative Noise Level (dBA)*
75	74.0	3.0	-28.0	-5.0	41.1	2	**44.1**
*Complies with the nighttime Noise Standard of 45 dBA.							

Event Noise

Dining/Entertainment is defined typically as any dining use that includes live entertainment. Uses within the shared public/private agricultural amenity area include a farm-to-table restaurant, farm stand, event lawns, discovery garden, greenhouse and community event space, and an outdoor education patio. These uses would occur during regular hours of operation with the limitation that any outdoor amplified music or other entertainment would not occur past 10:00 p.m. and will be controlled by the by the project owner and Master HOA.

The nearest residential uses to the proposed dining/entertainment use area are located across Leucadia Boulevard (approximately 760 ft south) and Sidonia Street (approximately 670 ft west). The general location of this dining/entertainment use area in the eastern portion of the site and the associated distances to the nearest sensitive uses is shown in Figure 5-2.

Figure 5-2: Dining/Entertainment Location and Distances



Low Amplification or Acoustical Music

Reference noise levels were gathered in September 2019 at Miramonte Winery located at 33410 Rancho California Road in Temecula, CA. The site provided both a similar garden environment, with a low amplification speaker system and a performance by an acoustical guitarist. The noise levels of the acoustical guitarist were taken at a distance of 25 feet from the performer. The noise levels from the music at 25 feet was 63.2 dBA and 64.4 dBA. The noise measurements of the low amplification speaker system with the noise meter located directly in front of the speaker at a distance of 5 feet was found to be 68.1 dBA, which would equate to 54.1 dBA at 25 feet. The higher reference noise level of 64.4 dBA at a distance of 25 feet will be utilized to determine if any control measures are needed to comply with the City's noise limits.

Music from a DJ

Reference noise levels were gathered in December 2017 at an event center located at 7520 El Cajon Boulevard in El Cajon, CA and June 2018 at an event center located at 633 Montecito Way in Ramona, CA. These sites provided both a similar urban environment (El Cajon) and a contrasting more rural environment (Ramona), with similar sound amplification systems. The operational noise levels at both events consisted of a DJ system and the noise measurements were taken at a distance of 25 feet from the speakers with the noise meter located centrally between both speakers. The noise levels from the music at 25 feet was 71.3 dBA and 75.2 dBA over a one-hour period, respectively. The DJ can also reduce the volume resulting in lower noise levels if desired or needed.

The empirical data also found that the noise levels on the sides and behind the DJ stage drop 10 decibels due to the directional characteristics of the speakers. The higher reference noise level of 75.2 dBA at a distance of 25 feet will be utilized to determine if any control measures are needed to comply with the City's noise limits.

Noise from a fixed or point source drops off at a rate of 6 dBA for each doubling of distance. The nearest sensitive use is 670 feet to the west of the dining/entertainment use area. The results of these different potential music events and the minimum setbacks needed to maintain exterior noise levels below 50 dBA are presented in Table 5-12. No impacts are anticipated and no additional analysis or design criteria is required.

Additionally, the numerous proposed residential apartment buildings, along with the speaker orientation, would provide 5-15 decibels of reduction at a minimum. Please note: to present a conservative analysis, no reductions for shielding from the proposed structures are incorporated in the findings presented in Table 5-12.

Table 5-12: Offsite Entertainment Noise Levels

Source	Reference Noise Level (dBA)	Distance (Feet)	Noise Reduction Due to Distance (dBA)	Resultant Noise Level (dBA)	Allowable Exterior Noise Level (dBA)*
1	64.4	670	-28.6	35.8	50
2	75.2	670	-28.6	46.6	50
***Complies with the City's 50 dBA exterior threshold**					
1. Low Amplification or Acoustical Music 2. Music from a DJ					

Additionally, noise levels at the building facades of the proposed on-site residential units were analyzed to ensure that interior noise levels would be reduced to an acceptable level of 45 dBA. The anticipated entertainment areas are identified as Number 5 (Outdoor Education and Event Patio) and Number 9 (Event Lawn) in Figure 5-3. Speakers may be set in several locations but at no time allowed to face directly at the proposed on-site residential units to the immediate west. It should be noted that no sensitive exterior use areas are located on the eastern facades of the proposed buildings located adjacent to the entertainment areas.

The City requires for residential developments an interior noise limit of 45 dBA for all residential uses. Based on numerous studies and efficiency standards in current residential Title 24 standards, residential structures provide 15 decibels of reduction with the windows open to the indoor uses and 25 decibels of reduction with the windows closed. This assumes a minimum sound transmission rating (STC) of 28 on the glass assemblies, which is a standard assembly. To maintain a 45 dBA noise level within the residential structures, the building façade noise should be 70 dBA or less. It should be noted: if better/higher STC rated glass assemblies are installed the noise levels would be reduced more than 25 decibels. Therefore, this is a conservative approach (particularly given the STC of 30 identified in Table 5-4).

As stated above, the empirical data also found that the noise levels on the sides and behind the DJ stage drop 10 decibels due to the directional characteristics of the speakers. The higher reference noise level of 75.2 dBA at a distance of 25 feet will be utilized to determine if any control measures are needed to comply with the City's noise limits. The locations of the potential speakers are also identified in Figure 5-3 and depicted as red dots numbered 1-4.

As can be seen in Figure 5-3, the nearest proposed residential units are located 40 ft from DJ location number 3. Locations 1 and 4 are located approximately 50 ft from a sensitive receptor while location 2 is located approximately 100 ft from the nearest receptor. The anticipated noise levels from each speaker location is presented in Table 5-13 below and accounts for noise reductions due to distance and speaker orientation.

Figure 5-3: Onsite Dining/Entertainment Location and Distances

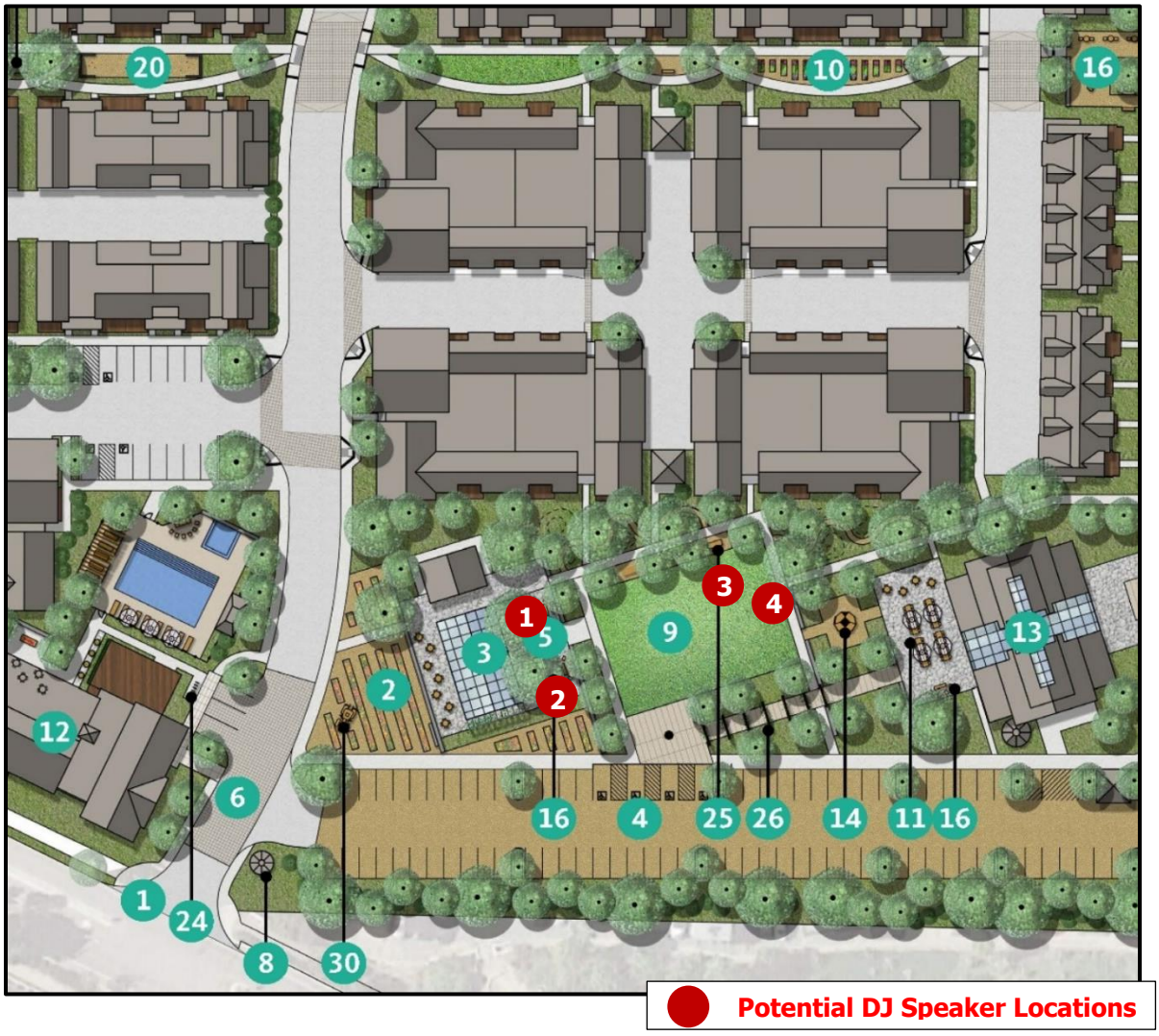


Table 5-13: Onsite Entertainment Noise Levels

Speaker Location	Reference Noise Level (dBA)	Distance to Nearest On-site Receptor (Feet)	Noise Reduction Due to Distance (dBA)	Resultant Noise Level (dBA)
1	75.2	60	-7.6	67.6
2		110	-12.0	63.2
3		40	-1.6	73.6
4		60	-6.0	69.2
***All Noise levels presented do NOT account for any reductions in speaker orientation.**				

According to Table 5-13, noise levels at the nearest building façade ranges from 63.2 to 73.6 dBA. As stated above, the empirical data has found that the noise levels on the sides and behind the DJ stage drop 10 decibels due to the directional characteristics of the speakers. Additionally, based on numerous studies and efficiency standards in current residential Title 24 standards, residential structures with the windows closed result in a 25 dBA noise reduction assuming a minimum sound transmission rating (STC) of 28 on the glass assemblies, which consistent with Title 24 standards. With these noise reductions accounted for, the worst-case noise level (73.6 dBA) identified in Table 5-3, would be reduced 10 dBA due to speaker orientation and another 25 dBA with the STC 28 rated glass assemblies which would equate to an interior noise of 38.6 dBA (73.6-10-25=38.6 dBA). Therefore, as the City's required interior threshold is 45 dBA, the noise produced during events would comply with the City's standards, and impacts would be less than significant.

Farm Noise

The farm will be equipped with a tractor for the occasional soil preparation and hauling of agricultural goods. The limited activity of the tractor would not result in noise impacts at the nearest residences located to the west.

The chicken coops are located in the northeastern corner of the proposed project site and would be located approximately 850 feet from the nearest residences to the west across Sidonia Street. Noise associated with chicken coops comes from roosters. Roosters are capable of producing a noise level of 90 dBA at a distance of 1 foot. Two roosters would result in a cumulative noise level of 93 dBA at 1 foot. At the nearest offsite residences, 850 feet away, the noise level would drop 58 decibels, resulting in a noise level of 35 dBA.

Onsite Trails

The trails on the western portion of the site will also be equipped with fixed, non-mechanical fitness nodes (i.e., push up pad, pull up bar). These are individual use items that may have two people talking about and utilizing the nodes at different times of the day, infrequently. The noise

associated would be similar to normal conversations of 60 dBA at 3 feet and raised voices of 65 dBA at 3 feet. The residential uses across Sidonia Street are, at a minimum, 60 feet from the trail uses. At a distance of 60 feet the noise levels would drop 26 decibels and even a very loud voice would be below the 50 dBA standard, even if continuous.

Operational Noise Conclusions

The noise levels from the proposed project operations were found to comply with the City's noise thresholds per Section 30.40 of the City of Encinitas Municipal Code.

6.0 REFERENCES

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7.0 CERTIFICATIONS

The contents of this report represent an accurate depiction of the noise environment and potential impacts within and surrounding the proposed development. This report was prepared utilizing the latest guidelines and reduction methodologies.

Jeremy Louden, Principal
Ldn Consulting, Inc.
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760-473-1253

Date August 20, 2020

ATTACHMENT A

Onsite Exterior Roadway Noise Levels

Attachment: Combined Roadway Noise Levels

Project Name:	Fox Point Farms	Date:	27-May-20
Project Number:	19-133	Location:	Encinitas

Traffic Volumes, Mix and Speeds

	Autos	Med. Trucks	Heavy Trucks
Mix Ratio by Percent			
Leucadia Boulevard	98.0	1.0	1.0
Quail Gardens Drive	99.0	0.5	0.5
Propagation Rule	Soft		

Roadway	ADT	Speed MPH	CNEL @ 50 Feet	60 CNEL (Feet)
Leucadia Boulevard	43,200	40	73.1	374
Quail Gardens Drive	5,500	35	62.1	69

Noise Reduction due to Distance

Outdoor Private Use (SW)	Distance	Reduction	Resultant Level	
Leucadia Boulevard	90	-3.83	69.3	
Quail Gardens Drive	525	-15.32	46.8	
Cumulative Noise Level			**69.3**	**dBA CNEL**
Common Use Area				
Leucadia Boulevard	125	-5.97	67.1	
Quail Gardens Drive	65	-1.71	60.4	
Cumulative Noise Level			**68.0**	**dBA CNEL**

ATTACHMENT B

Onsite Interior Noise Levels

INTERIOR NOISE CALCULATIONS

Project Name:	Fox Point Farms		Ldn Consulting, Inc.
Building (s)	All		
Floor Level	All	Date:	8/17/20
Arch Plan:	All		
Room Type:	Great Room	Project #	19-133

Exterior Noise Levels

		Frequency (Hz.)					
	dBA CNEL*	125	250	500	1000	2000	4000
Exterior Noise Level (Traffic Spectrum)	73.0	59.0	63.7	66.5	68.8	65.7	60.0

Transmission Loss (TL)

				Transmission Loss (dB)					
				Frequency (Hz.)					
Exterior Assembly	Source	Area	STC	125	250	500	1000	2000	4000
Stucco	NBS W-50-71	297	46	27	42	44	46	49	54
Windows	Champion	75	30	20	20	26	35	39	37
Fixed Window	Champion	0	30	20	21	26	34	38	29
Glass Doors	Thermal Tru	24	30	22	20	29	33	39	30
Exterior Door	NBS Monograph 77	0	28	16	14	23	30	36	26

Room Absorption (RA)

				Absorption Coefficients					
				Frequency (Hz.)					
Interior Characteristics	Source		NRC	125	250	500	1000	2000	4000
Carpet	Army TM 5-805-4		0.28	0.15	0.17	0.12	0.32	0.52	0.30
Furnishings	Army TM 5-805-4		0.45	0.32	0.29	0.42	0.58	0.60	0.48
Drywall	Netwell		0.07	0.09	0.08	0.05	0.03	0.06	0.09
Overall Absorption Factor (Furnished Room)			0.8	0.56	0.54	0.59	0.93	1.18	0.87

Noise Reduction

	125	250	500	1000	2000	4000
Noise Reduction from Absorption based upon Floor Area	-25.4	-25.4	-25.4	-25.4	-25.4	-25.4
Noise Level Increase for Defects and Exposed Surface Area	17.6	17.6	17.6	17.6	17.6	17.6
Overall Reduction from Tranmission Loss + Room Absorption - Surface Exposure						27.8
Building Façade Noise Level (dBA CNEL)						73.0
Resultant Interior Noise Level (dBA CNEL)						**45**

* Corrections for Façade Level was accounted for in the modeling.

INTERIOR NOISE CALCULATIONS

Project Name:	Fox Point Farms		Ldn Consulting, Inc.
Building (s)	All		
Floor Level	All	Date:	8/17/20
Arch Plan:	All		
Room Type:	Master Bedroom	Project #	19-133

Exterior Noise Levels

		Frequency (Hz.)					
	dBA CNEL*	125	250	500	1000	2000	4000
Exterior Noise Level (Traffic Spectrum)	73.0	59.0	63.7	66.5	68.8	65.7	60.0

Transmission Loss (TL)

				Transmission Loss (dB)					
				Frequency (Hz.)					
Exterior Assembly	Source	Area	STC	125	250	500	1000	2000	4000
Stucco	NBS W-50-71	108	46	27	42	44	46	49	54
Windows	Champion	30	30	20	20	26	35	39	37
Fixed Window	Champion	0	30	20	21	26	34	38	29
Glass Doors	Thermal Tru	0	30	22	20	29	33	39	30
Exterior Door	NBS Monograph 77	0	28	16	14	23	30	36	26

Room Absorption (RA)

				Absorption Coefficients					
				Frequency (Hz.)					
Interior Characteristics	Source		NRC	125	250	500	1000	2000	4000
Carpet	Army TM 5-805-4		0.28	0.15	0.17	0.12	0.32	0.52	0.30
Furnishings	Army TM 5-805-4		0.45	0.32	0.29	0.42	0.58	0.60	0.48
Drywall	Netwell		0.07	0.09	0.08	0.05	0.03	0.06	0.09
Overall Absorption Factor (Furnished Room)			0.8	0.56	0.54	0.59	0.93	1.18	0.87

Noise Reduction

	125	250	500	1000	2000	4000
Noise Reduction from Absorption based upon Floor Area	-22.8	-22.8	-22.8	-22.8	-22.8	-22.8
Noise Level Increase for Defects and Exposed Surface Area	15.5	15.5	15.5	15.5	15.5	15.5
Overall Reduction from Tranmission Loss + Room Absorption - Surface Exposure						33.6
Building Façade Noise Level (dBA CNEL)						73.0
Resultant Interior Noise Level (dBA CNEL)						**39**

* Corrections for Façade Level was accounted for in the modeling.

INTERIOR NOISE CALCULATIONS

Project Name:	Fox Point Farms		Ldn Consulting, Inc.
Building (s)	All		
Floor Level	All	Date:	8/17/20
Arch Plan:	All		
Room Type:	Bedroom 2	Project #	19-133

Exterior Noise Levels

		Frequency (Hz.)					
	dBA CNEL*	125	250	500	1000	2000	4000
Exterior Noise Level (Traffic Spectrum)	73.0	59.0	63.7	66.5	68.8	65.7	60.0

Transmission Loss (TL)

				Transmission Loss (dB)					
				Frequency (Hz.)					
Exterior Assembly	Source	Area	STC	125	250	500	1000	2000	4000
Stucco	NBS W-50-71	99	46	27	42	44	46	49	54
Windows	Champion	30	30	20	20	26	35	39	37
Fixed Window	Champion	0	30	20	21	26	34	38	29
Glass Doors	Thermal Tru	0	30	22	20	29	33	39	30
Exterior Door	NBS Monograph 77	0	28	16	14	23	30	36	26

Room Absorption (RA)

				Absorption Coefficients					
				Frequency (Hz.)					
Interior Characteristics	Source		NRC	125	250	500	1000	2000	4000
Carpet	Army TM 5-805-4		0.28	0.15	0.17	0.12	0.32	0.52	0.30
Furnishings	Army TM 5-805-4		0.45	0.32	0.29	0.42	0.58	0.60	0.48
Drywall	Netwell		0.07	0.09	0.08	0.05	0.03	0.06	0.09
Overall Absorption Factor (Furnished Room)			0.8	0.56	0.54	0.59	0.93	1.18	0.87

Noise Reduction

	125	250	500	1000	2000	4000
Noise Reduction from Absorption based upon Floor Area	-19.6	-19.6	-19.6	-19.6	-19.6	-19.6
Noise Level Increase for Defects and Exposed Surface Area	15.4	15.4	15.4	15.4	15.4	15.4
Overall Reduction from Tranmission Loss + Room Absorption - Surface Exposure						30.5
Building Façade Noise Level (dBA CNEL)						73.0
Resultant Interior Noise Level (dBA CNEL)						**43**

* Corrections for Façade Level was accounted for in the modeling.

INTERIOR NOISE CALCULATIONS

Project Name:	Fox Point Farms		Ldn Consulting, Inc.
Building (s)	All		
Floor Level	All	Date:	8/17/20
Arch Plan:	All		
Room Type:	Family/Great	Project #	19-133

Exterior Noise Levels

		Frequency (Hz.)					
	dBA CNEL*	125	250	500	1000	2000	4000
Exterior Noise Level (Traffic Spectrum)	73.0	59.0	63.7	66.5	68.8	65.7	60.0

Transmission Loss (TL)

				Transmission Loss (dB)					
				Frequency (Hz.)					
Exterior Assembly	Source	Area	STC	125	250	500	1000	2000	4000
Stucco	NBS W-50-71	328	46	27	42	44	46	49	54
Windows	Champion	80	30	20	20	26	35	39	37
Fixed Window	Champion	0	30	20	21	26	34	38	29
Glass Doors	Thermal Tru	24	30	22	20	29	33	39	30
Exterior Door	NBS Monograph 77	0	28	16	14	23	30	36	26

Room Absorption (RA)

				Absorption Coefficients					
				Frequency (Hz.)					
Interior Characteristics	Source		NRC	125	250	500	1000	2000	4000
Carpet	Army TM 5-805-4		0.28	0.15	0.17	0.12	0.32	0.52	0.30
Furnishings	Army TM 5-805-4		0.45	0.32	0.29	0.42	0.58	0.60	0.48
Drywall	Netwell		0.07	0.09	0.08	0.05	0.03	0.06	0.09
Overall Absorption Factor (Furnished Room)			0.8	0.56	0.54	0.59	0.93	1.18	0.87

Noise Reduction

	125	250	500	1000	2000	4000
Noise Reduction from Absorption based upon Floor Area	-25.6	-25.6	-25.6	-25.6	-25.6	-25.6
Noise Level Increase for Defects and Exposed Surface Area	17.6	17.6	17.6	17.6	17.6	17.6
Overall Reduction from Tranmission Loss + Room Absorption - Surface Exposure						27.7
Building Façade Noise Level (dBA CNEL)						73.0
Resultant Interior Noise Level (dBA CNEL)						**45**

* Corrections for Façade Level was accounted for in the modeling.

INTERIOR NOISE CALCULATIONS

Project Name:	Fox Point Farms		Ldn Consulting, Inc.
Building (s)	All		
Floor Level	All	Date:	8/17/20
Arch Plan:	All		
Room Type:	Master Bedroom	Project #	19-133

Exterior Noise Levels

		Frequency (Hz.)					
	dBA CNEL*	***125***	***250***	***500***	***1000***	***2000***	***4000***
Exterior Noise Level (Traffic Spectrum)	73.0	59.0	63.7	66.5	68.8	65.7	60.0

Transmission Loss (TL)

				Transmission Loss (dB)					
				Frequency (Hz.)					
Exterior Assembly	***Source***	***Area***	***STC***	***125***	***250***	***500***	***1000***	***2000***	***4000***
Stucco	NBS W-50-71	162	46	27	42	44	46	49	54
Windows	Milgard	40	30	20	20	26	35	39	37
Fixed Window	Milgard	0	30	20	21	26	34	38	29
Glass Doors	Milgard	0	30	22	20	29	33	39	30
Exterior Door	NBS Monograph 77	0	28	16	14	23	30	36	26

Room Absorption (RA)

				Absorption Coefficients					
				Frequency (Hz.)					
Interior Characteristics	***Source***		***NRC***	***125***	***250***	***500***	***1000***	***2000***	***4000***
Carpet	Army TM 5-805-4		0.28	0.15	0.17	0.12	0.32	0.52	0.30
Furnishings	Army TM 5-805-4		0.45	0.32	0.29	0.42	0.58	0.60	0.48
Drywall	Netwell		0.07	0.09	0.08	0.05	0.03	0.06	0.09
Overall Absorption Factor (Furnished Room)			0.8	0.56	0.54	0.59	0.93	1.18	0.87

Noise Reduction

	125	***250***	***500***	***1000***	***2000***	***4000***
Noise Reduction from Absorption based upon Floor Area	-22.5	-22.5	-22.5	-22.5	-22.5	-22.5
Noise Level Increase for Defects and Exposed Surface Area	15.8	15.8	15.8	15.8	15.8	15.8
Overall Reduction from Tranmission Loss + Room Absorption - Surface Exposure						28.9
Building Façade Noise Level (dBA CNEL)						73.0
Resultant Interior Noise Level (dBA CNEL)						**44**

* Corrections for Façade Level was accounted for in the modeling.

INTERIOR NOISE CALCULATIONS

Project Name:	Fox Point Farms		Ldn Consulting, Inc.
Building (s)	All		
Floor Level	2	Date:	8/17/20
Arch Plan:	2		
Room Type:	Bedroom 2	Project #	19-133

Exterior Noise Levels

		Frequency (Hz.)					
	dBA CNEL*	125	250	500	1000	2000	4000
Exterior Noise Level (Traffic Spectrum)	73.0	59.0	63.7	66.5	68.8	65.7	60.0

Transmission Loss (TL)

				Transmission Loss (dB)					
				Frequency (Hz.)					
Exterior Assembly	Source	Area	STC	125	250	500	1000	2000	4000
Stucco	NBS W-50-71	216	46	27	42	44	46	49	54
Windows	Milgard	38	30	20	20	26	35	39	37
Fixed Window	Milgard	0	30	20	21	26	34	38	29
Glass Doors	Milgard	0	30	22	20	29	33	39	30
Exterior Door	NBS Monograph 77	0	28	16	14	23	30	36	26

Room Absorption (RA)

				Absorption Coefficients					
				Frequency (Hz.)					
Interior Characteristics	Source		NRC	125	250	500	1000	2000	4000
Carpet	Army TM 5-805-4		0.28	0.15	0.17	0.12	0.32	0.52	0.30
Furnishings	Army TM 5-805-4		0.45	0.32	0.29	0.42	0.58	0.60	0.48
Drywall	Netwell		0.07	0.09	0.08	0.05	0.03	0.06	0.09
Overall Absorption Factor (Furnished Room)			0.8	0.56	0.54	0.59	0.93	1.18	0.87

Noise Reduction

	125	250	500	1000	2000	4000
Noise Reduction from Absorption based upon Floor Area	-19.2	-19.2	-19.2	-19.2	-19.2	-19.2
Noise Level Increase for Defects and Exposed Surface Area	15.9	15.9	15.9	15.9	15.9	15.9
Overall Reduction from Tranmission Loss + Room Absorption - Surface Exposure						28.6
Building Façade Noise Level (dBA CNEL)						73.0
Resultant Interior Noise Level (dBA CNEL)						**44**

* Corrections for Façade Level was accounted for in the modeling.

APPENDIX O-1 TRANSPORTATION IMPACT STUDY

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Fox Point Farms

Draft Transportation Impact Study

August 2020

Prepared for

Nolen Communities, LLC
1680 N. Coast Highway, #51
Encinitas, CA 92024

Prepared by

CHEN RYAN
3900 Fifth Avenue, Suite 310
San Diego, CA 92103

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1.0 Introduction

The purpose of this Vehicle Miles Traveled (VMT) Assessment is to identify and document any potentially significant VMT-related impacts associated with the development of the proposed Fox Point Farms Project (Proposed Project), and to recommend mitigation measures for identified impacts, as necessary.

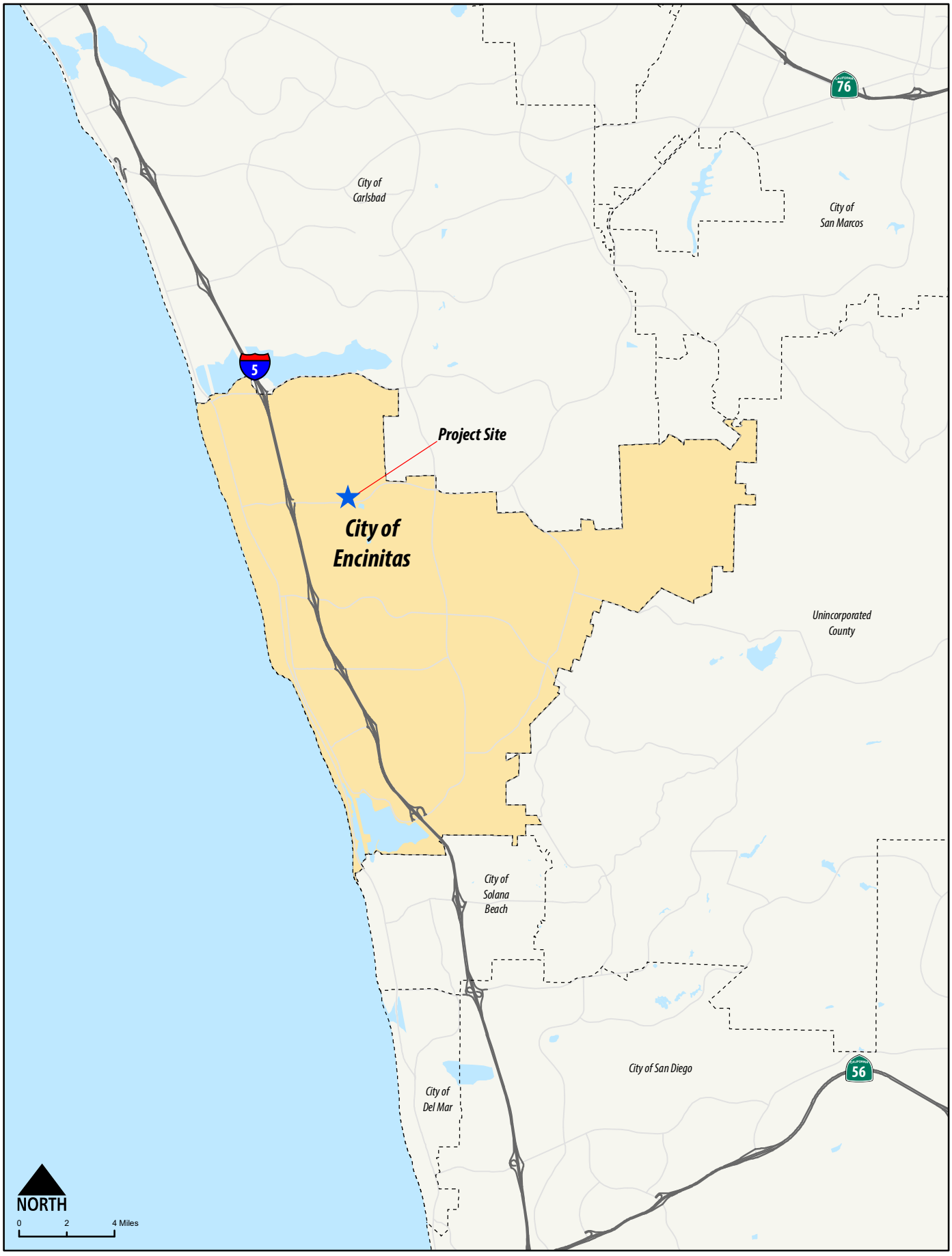
1.1 Project Description

Fox Point Farms is located at the northwest corner of the intersection of Quail Gardens Drive and Leucadia Boulevard, within the City of Encinitas. The Proposed Project would redevelop the existing 18-acre Flower Mart with up-to 250 multiple-family units, including 197 apartments and 53 "for-sale" condominiums, a 3,500 square-foot sit-down restaurant, community supporting park spaces (e.g. educational gardens, elementary school tours, etc.), a 3,213 square foot farm stand, a 3,000 square foot nursery, and 5.5-acres of farmland. **Figure 1.1** displays the Proposed Project's regional location.

Vehicle access to the Proposed Project would be provided via the following one (1) side-street stop-controlled driveways:

- Quail Gardens Drive / Project Driveway 1 – This driveway is the existing Dramm and Echter Flower-Mart driveway and would be maintained for the Proposed Project. It is located approximately 400 feet north of Leucadia Boulevard and would allow for full-access. This is an unsignalized intersection with traffic on Quail Gardens Drive as uncontrolled, and the Project Driveway being stop controlled. This driveway would include one inbound and one outbound lane.

A secondary access is provided on Sidonia Street, which will be gated and reserved for emergency vehicles only. **Figure 1.2** displays the Proposed Project site plan.



Fox Point Farms
Transportation Impact Study
CHEN RYAN

Figure 1.1
Project Regional Location



Source: Nolen Communities & Schmidt Design Group

Fox Point Farms
Transportation Impact Study
CHEN RYAN

Figure 1.2
Project Site Plan

1.2 Project Setting

Access to the Proposed Project from the regional transportation network would be provided via Interstate 5 Freeway, Leucadia Boulevard, El Camino Real, Saxony Street, Quail Gardens Drive, and Sidonia Street. These roadways would either provide a direct connection to Proposed Project, via project driveways (on Quail Gardens Drive and Sidonia Street) or would provide a critical link between the Proposed Project and the regional transportation network. Descriptions of these transportation network facilities are described below:

Interstate 5 (I-5) – Within the project study area, I-5 is a north-south freeway located approximately 3,600 free to the west of the Proposed Project site. Access from the I-5 to the study area is taken from the Leucadia Boulevard interchange.

Leucadia Boulevard – Near the Proposed Project site, Leucadia Boulevard is a four-lane roadway with a raised median between Urania Avenue and Garden View Road, a five-lane roadway with a raised median between the I-5 northbound ramps and Urania Avenue, and a six-lane roadway with a raised median between Garden View Road and El Camino Real. Leucadia Boulevard has a posted speed limits of 40 and 45 miles per hour. On-street parking is not permitted, and sidewalks are present on both sides with exception to the segment between Quail Gardens Drive and Garden View Road where a paved path exists along the south side of the roadway. Additionally, buffered bike lanes protected by bright green plastic pylons were recently installed on Leucadia Boulevard east of I-5 to Quail Gardens Drive. East of Quail Gardens Drive, the buffers end and the bicycle facilities transition to Class II bicycle lanes up until El Camino Real. According to the *City of Encinitas General Plan* (2003), Leucadia Boulevard is classified as a Four-Lane Major Roadway – Augmented between I-5 northbound ramps and Town Center Place and a six-Lane Prime Arterial between Town Center Place and El Camino Real.

El Camino Real – Near the Proposed Project site, El Camino Real is a six-lane roadway with a raised median and a posted speed limit of 45 miles per hour between Calle Barcelona and Town Center Drive. Sidewalks and Class II bicycle facilities exist on both sides of the roadway. On-street parking is not permitted on either side of the roadway. According to the *City of Encinitas General Plan* (2003), El Camino Real is classified as a Six-Lane Prime Arterial – Augmented.

Saxony Street – Near the Proposed Project site, Saxony Street is a two-lane roadway with posted speed limits of 30 and 35 miles per hour. Sidewalks are present intermittently on both sides of the roadway, but bicycle facilities are not present on either side. On-street parking is permitted along the roadway fronting residential land uses only. According to the *City of Encinitas General Plan* (2003), Saxony Street is classified as a Two-Lane Local Collector Roadway.

Quail Gardens Drive – Near the Proposed Project site, Quail Gardens Drive is a two-lane roadway with a raised median between Ranch Road and Leucadia Boulevard. Quail Gardens Drive has a posted speed limit of 35 miles per hour. On-street parking is not permitted. A dirt path exists along the east side of the roadway and sidewalk facilities along the west side of the roadway. There are Class II bicycle facilities along both sides of Quail Gardens Drive. According to the *City of Encinitas General Plan* (2003), Quail Gardens Drive is classified as a Two-Lane Local Roadway - Augmented.

Sidonia Street – Near the Proposed Project site, Sidonia Street is a two-lane undivided roadway between Guildford Court and Leucadia Boulevard with a posted speed limit of 25 miles per hour. Sidewalk facilities are present along the west side of the roadway, but not the east side. Additionally, on-street parking is

permitted along the west side of the roadway, but not the east. Sidonia Street is not classified as a circulation element within the *City of Encinitas General Plan* (2003).

Transit Access – North County Transit District (NCTD) Bus Route #304 is the only transit route that has a stop within a half-mile of the Proposed Project. The closest bus stop to the Proposed Project site is located at the northwest and southeast corners of Leucadia Boulevard and Sidonia Street (which is directly adjacent to the Proposed Project site). Bus Route 304 connects the Palomar College Transit Center to the Encinitas Station with 43 bus stops and operates with 40-minute headways. Because of the longer headways, the Proposed Project is not be considered to be within a half-mile of a major transit station[1] and therefore is not located within a Transit Priority Area. Additionally, there are no park-n-ride facilities within close proximity to the Proposed Project site. The closest major transit station to the Proposed Project site is the Encinitas Transit Station, which is approximately 2.3 road miles away and provides access to the COASTER, and NCTD Bus Routes 101, 304, and 309.

Figure 1.3 display the transportation network around the Proposed Project site.

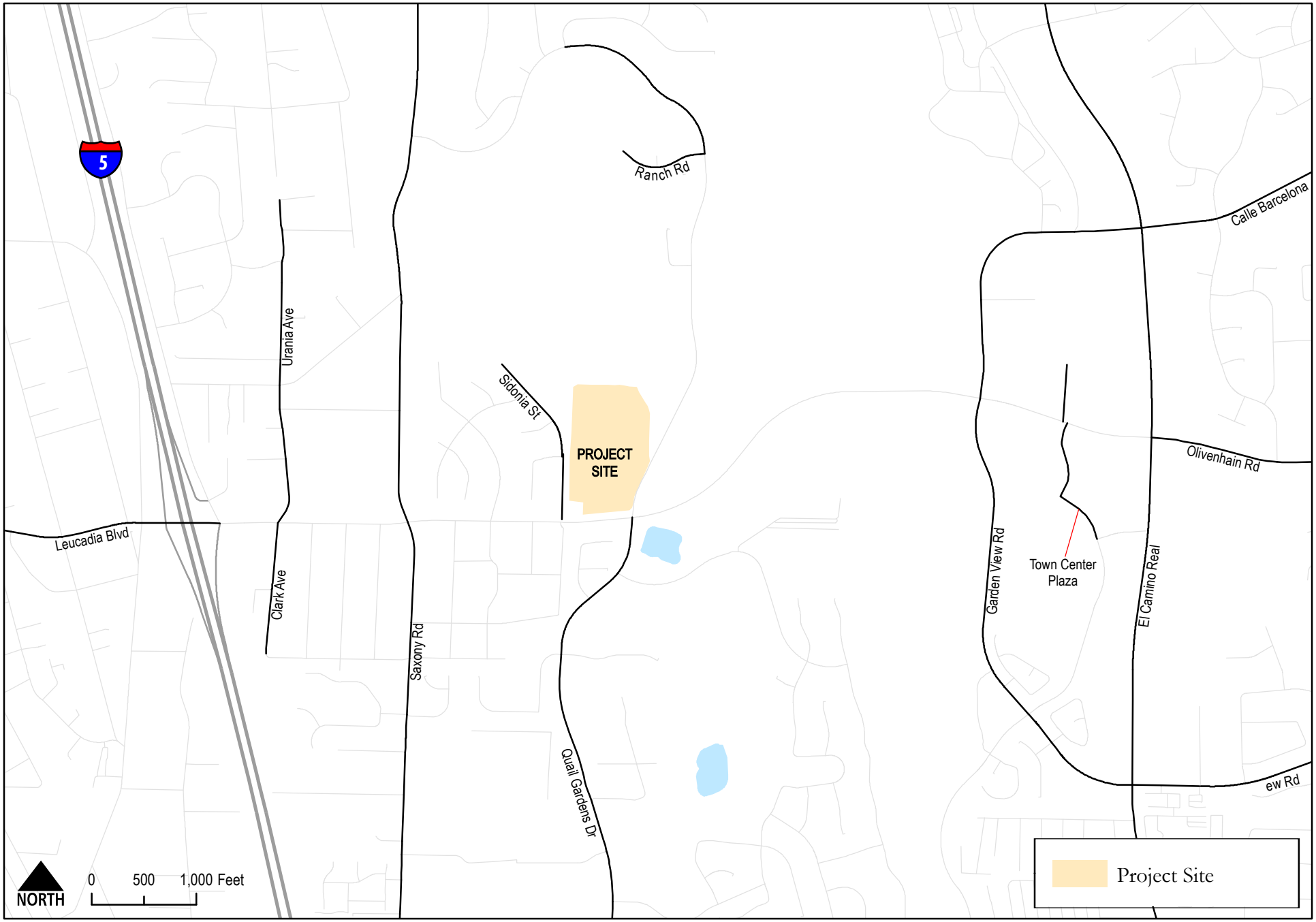
1.3 Report Organization

Following this Introduction chapter, this report is organized into the following sections:

2.0 *Analysis Methodology* – This chapter describes the methodologies and standards utilized to analyze and identify the transportation related impacts associated with the Proposed Project.

3.0 *Transportation Related Impacts and Mitigation* – This chapter derives and analyzes the projected Vehicle Miles Traveled (VMT) that will be generated by the Proposed Project. This chapter also identifies if the Proposed Project related VMT would create significant project related impact, as it relates to the standards outlined in the California Environmental Quality Act (CEQA). Finally, the chapter provides recommendations for mitigation measures to reduce the identified transportation related impacts to less than significant levels and evaluates the feasibility of the proposed mitigation measures.

[1] Pub. Resources Code, § 21064.3 ("'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.").



Fox Point Farms in Encinitas
Transportation Impact Study
CHEN RYAN

Figure 1.3
Project Area

2.0 Analysis Methodology and Threshold

This VMT Assessment was conducted in accordance with the standards and requirements of the 2020 CEQA Statutes and Guidelines.

2.1 Background (SB-743)

On September 27, 2013, Governor Edmund G. Brown, Jr. signed SB-743 into law, starting a process that is expected to fundamentally change the way transportation impact analysis is conducted under CEQA. Within the State's CEQA Guidelines, these changes will include elimination of auto delay, level of service (LOS), and similar measurements of vehicular roadway capacity and traffic congestion as the basis for determining significant impacts. Lead agencies have until July 1, 2020 to comply with the updated CEQA revision.

2.2 Analysis Guidelines and Significance Thresholds

At this point in time, two SB-743 guidelines have been published that would be applicable to the City of Encinitas. The background for both guidelines is discussed below.

Office of Planning and Research – Technical Advisory on Evaluating Transportation Impacts in CEQA[2]

On December 2018, the Resources Agency certified and adopted the CEQA Guidelines update package, which included the California Natural Resources Agency Guidelines for the Implementation of the California Environmental Quality Act. As a result, the California Governor's Office of Planning and Research (OPR) updated and released the *Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory)* in December 2018.

The CEQA Guidelines recommend use of automobile VMT as the preferred CEQA transportation metric, along with the elimination of auto delay/LOS for CEQA purposes statewide. However, lead agencies have the discretion to select their preferred significance thresholds with respect to what level of VMT increase would cause a significant environmental impact. Lead agencies were provided the opportunity to use the thresholds suggested in the Technical Advisory or develop alternative thresholds.

Under the guidance suggested in the Technical Advisory, the VMT analysis can be conducted by comparing either project VMT/capita or VMT/employee to (1) the regional average, or (2) the average for the city or community in which the project is located. Per the Technical Advisory, if the project average VMT/capita or VMT/employee is lower than either (1) 85% of the regional average or (2) 85% of the average for the city or community in which the project is located, the VMT impacts of the project can be presumed less than significant.

For land use projects, such as the Proposed Project, the Technical Advisory reports that research has shown that automobile VMT/Capita at the project level should be fifteen percent (15%) below those of existing development (i.e., 85% of the existing average). A fifteen percent reduction is consistent with SB 743's direction to select a threshold that will help the State achieve its climate goals, including reducing GHG emissions associated with vehicular travel.

The Technical Advisory is provided in **Appendix A.**

[2] http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

ITE – Guidelines for Transportation Impact Studies in The San Diego Region[3]

In response to the implementation of SB-743, the Institute of Transportation Engineers (ITE) San Diego section has prepared draft *Guidelines for Transportation Impact Studies in the San Diego Region, January 22, 2019* (*Regional TIS Guidelines*) as their transportation impact study guidelines and standards prior to the mandatory implementation of SB-743 (July 1, 2020). *The Regional TIS Guidelines* were developed by a committee of transportation engineers, both public agencies and private practitioners, currently operating within the San Diego Region, and were primarily based on the standards set forth in OPR's Technical Advisory. The intention of the guidelines is to address the new transportation analysis metrics and requirements, significance thresholds, and standards enacted by SB-743. The Regional TIS Guidelines were also developed to provide a consistent approach in the way transportation related impacts are analyzed, quantified, identified and mitigated within the San Diego Region. It is anticipated that many of the jurisdictions within the San Diego Region, such as the City of Encinitas, will adopt the Regional TIS Guidelines, or something similar, prior to the mandatory implementation of SB-743 on July 1, 2020.

The Regional TIS Guidelines is provided in **Appendix B.**

2.3 Analysis Methodology - CEQA

The following section describes the analysis methods outlined in both OPR's Technical Advisory and ITE's Regional TIS Guidelines in which transportation related impacts are analyzed and identified. Note that this section only provides a brief summary of information provided in both guidelines, a full copy of the guidelines has been included in Appendix A and B to provide additional detail, if needed.

2.3.1 Screening Criteria

OPR and ITE guidance recognize that small land use projects, which fall below certain screening thresholds, would not have a significant effect on VMT. **Table 2.1** displays the Average Daily Traffic (ADT) thresholds for land use development projects, as contained in the Technical Advisory and Regional TIS Guidelines. Projects that are below these thresholds are presumed to be less than significant. Also, as shown in Table 2.1, different levels of analysis are recommended by ITE based on the number of ADT generated by a land use project.

[3] Source: *Institute of Transportation Engineers San Diego Section (ITE San Diego) Transportation Capacity and Mobility Task Force SB 743 Subcommittee*
https://static1.squarespace.com/static/5ab6b8a33e2d09b08935bcb1/t/5c521ddf21c67c7bc8ba547c/1548885476933/Draft+Guidelines+for+TIS+in+the+San+Diego+Region+1-22-19.pdf

Table 2.1 VMT Screening Criteria and Analysis Threshold

Guidelines	Consistent w/ General Plan?	ADT	Level of Analysis
OPR *Technical Advisory*	N/A	0 – 110	VMT Analysis Not Needed/VMT Impacts Presumed Less than Significant
	N/A	> 110	VMT analysis using the SANDAG Regional Model
ITE *Regional TIS Guidelines*	Consistent	0 - 1,000	VMT Analysis Not Needed/VMT Impacts Presumed Less than Significant
	Consistent	1,000 – 2,400	VMT analysis using the SANDAG VMT Calculation tool
	Consistent	> 2,400	VMT analysis using the SANDAG Regional Model
	Inconsistent	0 – 500	VMT Analysis Not Needed/VMT Impacts Presumed Less than Significant
	Inconsistent	500 – 2,400	VMT analysis using the SANDAG VMT Calculation tool
	Inconsistent	> 2,400	VMT analysis using the SANDAG Regional Model

Source: OPR *Technical Advisory* and *Regional TIS Guidelines*

As outlined in the table above, according to the Technical Advisory, any land use project that generates more than 110 ADT should conduct a VMT analysis.

Alternatively, according to the Regional TIS Guidelines, any project that generates less than 1,000 ADT, if consistent with the City's General Plan, or 500 if inconsistent with the City's General Plan, is not required to conduct a VMT analysis.

As to the level of analysis suggested under the ITE Regional TIS Guidelines, projects that generate greater than the minimum allowable ADT threshold (500 ADT or 1,000 ADT), but less than 2,400 ADT are required to conduct a VMT analysis using the SANDAG VMT calculation tool. Projects that generate more than 2,400 ADT are required to conduct a VMT analysis using the SANDAG Regional Model, regardless of whether or not the project is consistent with the General Plan.

2.3.2 Analysis Metrics

For land use development projects, the Technical Advisory and Regional TIS Guidelines require the following two metrics be analyzed to determine if a project has a significant transportation-related impact:

- *VMT/Capita*: Includes all vehicle-based person trips grouped and summed to the home location of individuals who are drivers or passengers on each trip. It includes both home-based and non-homebased trips. The VMT for each home is then summed for all homes in a particular census tract and divided by the population of that census tract to arrive at Resident VMT/Capita.

- *VMT/Employee*: Includes all vehicle-based person trips grouped and summed to the work location of individuals on the trip. This includes all trips, not just work-related trips. The VMT for each work location is then summed for all work locations in a particular census tract and then divided by the total number of employees of that census tract to arrive at the VMT/Employee.

2.3.3 Analysis Tools

The Technical Advisory and Regional TIS Guidelines recommend the following tools be used to project the VMT/Capita and the VMT/Employee that would be generated by land use development projects:

SANDAG Concept Map

The SANDAG Concept Map[4] provides regional and location specific (i.e. traffic analysis zones (TAZ)) VMT/Capita and VMT/Employee information using the Series13 Scenario 720 travel demand model. This map is to be used for residential and/or office land use projects that exceed the minimum thresholds (i.e. 110 based on OPR's Technical Advisory, and 1,000 ADT, if consistent with the City's General Plan, or 500 if inconsistent with the City's General Plan), but generate less than 2,400 ADT.

SANDAG Model

Both guidelines recommend using a Travel Demand Forecasting model to calculate the VMT/Capita and VMT/Employee of a land use model. The SANDAG Series 13 model is an Activity Based Model that simulates individual and household transportation decisions that compose their daily travel itinerary. People travel outside their home for activities such as work, school, shopping, healthcare, and recreation, and the ABM attempts to predict whether, where, when, and how this travel occurs, this process is called a tour. ABMs are particularly good at conducting VMT/Capita and VMT/Employee assessments because they can incorporate and evaluate Transportation Demand Management (TDM) policies, social equity, carpooling, transit access, parking conditions, tolling and pricing. Because an ABM tracks the characteristics of each person, the model can be used to analyze the travel patterns of a wide range of socioeconomic groups. For example, a household with many members may be more likely to carpool, own multiple vehicles, and share shopping responsibilities.

The SANDAG ABM includes a number of methodological strengths. It predicts the travel decisions of San Diego residents at a detailed level, taking into account the way people schedule their day, their behavioral patterns, and the need to cooperate with other household members. When simulating a person's travel patterns, the ABM takes into consideration a multitude of personal and household attributes like age, income, and gender. The model's fine temporal and spatial resolution ensures that it is able to capture subtle aspects of travel behavior.

As noted on page 5 of the OPR Technical Advisory:

> Tour- and trip-based approaches offer the best methods for assessing VMT from residential/office projects and for comparing those assessments to VMT thresholds. These approaches also offer the most straightforward methods for assessing VMT reductions from mitigation measures for residential/office projects. When available, tour-based assessment is ideal because it captures travel behavior more comprehensively. But where tour-based tools or data are not available for all components of an analysis, a trip-based assessment of VMT serves as a reasonable proxy.

The SANDAG Series 13 Model incorporates a tour-based approach when calculating and evaluating VMT. Therefore, based on the guidance presented above, as well as the recommendation contained in the *Region TIS Guidelines*, the SANDAG Series 13 Model was chosen as the most appropriate tool to evaluate the Proposed Project's VMT generation.

[4] VMT/Capita = http://sandag.github.io/sb743/sb743_concept_map.htm; VMT/Employee = http://sandag.github.io/sb743/sb743_concept_map_employee.htm

The OPR Technical Advisory states that the project's impact should be compared to existing development; therefore, the SANDAG Travel Demand Model's Base Year (2012) model should be used to analyze a projects' relative reduction in VMT. Alternatively, the Regional TIS Guidelines specifies for land use projects generating over 2,400 ADT, VMT/Capita and VMT/Employee analysis should be conducted using the SANDAG model using the latest SANDAG Regional Transportation Improvement Program (RTIP) year. The RTIP is a multi-billion-dollar, multi-year program of major transportation projects in the San Diego Region. Transportation projects funded with federal, state and TransNet (the San Diego transportation sales tax program managed by SANDAG) funds must be included in an approved RTIP. The RTIP covers five fiscal years and incrementally implements *San Diego Forward: The Regional Plan,* the long-range transportation plan for the San Diego region. At its meeting on September 28, 2018, the SANDAG Board of Directors adopted the final 2018 RTIP. As such, the current RTIP covers transportation projects up to the year 2023. On the other hand, the SANDAG Regional Transportation Model forecast years are for the years 2020, 2035, and 2050. Therefore, based on the Regional TIS Guidelines, the most appropriate year to conduct the VMT/Capita and VMT/Employee is the 2020.

To calculate VMT/Capita and VMT/Employee, project land uses must be coded into the Transportation Analysis Zone (TAZ) in which the project is located. A Select Zone assignment is then conducted for the project TAZ to track origin and destination pairings and routes to and from the project. The VMT for each home is then summed for all homes in the TAZ and divided by the population of that TAZ to arrive at Resident VMT/Capita. Similarly, the VMT for each employee is summed within the TAZ and then divided by the number of jobs.

A detailed description of how the SANDAG Model calculates VMT is provided at the following location: https://www.sandag.org/uploads/2050RTP/F2050RTPTA15.pdf

2.4 Determination of Significance - CEQA

The CEQA Guidelines recommend use of automobile VMT as the preferred CEQA transportation metric, along with the elimination of auto delay/LOS. However, lead agencies have the discretion to select their preferred significance thresholds with respect to what level of VMT increase would cause a significant environmental impact. Lead agencies have the opportunity to choose the thresholds suggested in OPRs Technical Advisory or develop alternative thresholds. The analysis can be conducted by comparing either (1) the project VMT/capita or (2) the project VMT/employee to both (1) the San Diego regional average or (2) the average for the city or community in which the project is located.

Per the OPR Technical Advisory and the Regional TIS Guidelines, if the project average is lower than either 85% of the regional average or 85% of the average for the city or community in which the project is located, the VMT impacts of the project can be presumed less than significant. Since the City of Encinitas has not yet adopted an alternative threshold to demonstrate SB-743 guidelines, the VMT Assessment for the Proposed Project is analyzed against the following VMT thresholds to cover all potential geographical areas:

- Average VMT/Capita for the Region
- Average VMT/Capita for City of Encinitas
- Average VMT/Capita for North County[5]

[5] North County includes Oceanside, Carlsbad, Encinitas, Del Mar, Solana Beach, Escondido, San Marcos, Poway, and Vista

- Average VMT/Capita for Coastal Cities[6]

For both residential and employment-based land use developments, a project is considered to have a less than significant transportation related impact if the project VMT/Capita and VMT/Employee is lower than 85% of the regional average or 85% of the average for the area in which the project is located. The significance thresholds are shown in Table 2.2.

Table 2.2 Significance Thresholds

Land Use	Metric	Average VMT in miles[1]	Threshold[2]
San Diego Region			
Residential	VMT/Capita	17.6 (16.4)	15.0 (13.9)
Commercial	VMT/Employee	25.9 (24.9)	22.0 (21.2)
City of Encinitas			
Residential	VMT/Capita	20.8 (18.9)	17.7 (16.1)
Commercial	VMT/Employee	29.2 (27.4)	24.8 (23.3)
North San Diego County			
Residential	VMT/Capita	17.3 (15.9)	14.7 (13.5)
Commercial	VMT/Employee	25.6 (24.3)	21.2 (20.7)
Coastal Cities			
Residential	VMT/Capita	18.8 (17.6)	16.0 (15.0)
Commercial	VMT/Employee	26.0 (24.8)	22.1 (21.1)

Notes:
[1] Base Year Average (RTIP Year Average)
[2] OPR Technical Advisory recommends threshold is compared against 85% of the Base Year (2012) area average.
Regional TIS Guidelines recommends threshold is compared against 85% of the RTIP Year (2020) area average.
Significant impact occurs if the Project VMT/Capita or VMT/Employee is over the threshold.
Base Year Area Average (RTIP Year Area Average)

2.5 Cumulative Impacts

As stated on Page 6 of the OPR Technical Advisory:

> A project's cumulative impacts are based on an assessment of whether the "incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." (Pub. Resources Code, § 21083, subd. (b)(2); see CEQA Guidelines, § 15064, subd. (h)(1).) When using an absolute VMT metric, i.e., total VMT (as recommended below for retail and transportation projects), analyzing the combined impacts for a cumulative impact analysis may be appropriate. However, metrics such as VMT per capita or VMT per employee, i.e., metrics framed in terms of efficiency (as recommended below for use on residential and office projects), cannot be summed because they employ a denominator. A project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plans would have no cumulative impact distinct from the project impact. Accordingly, a finding of a less-than-significant project impact would imply a less than significant cumulative impact, and vice versa. This is similar to the analysis typically conducted for greenhouse gas emissions, air quality impacts, and impacts that utilize plan compliance as a threshold of significance. (See Center for Biological Diversity v. Department of Fish & Wildlife (2015) 62 Cal.4th 204, 219, 223; CEQA Guidelines, § 15064, subd. (h)(3).)

[6] Coastal Cities includes Oceanside, Carlsbad, Encinitas, Del Mar, Solana Beach

As noted above, since the Proposed Project's transportation related impacts are being identified and evaluated based on both its anticipated VMT per capita or VMT per employee, its cumulative impacts are assumed be the same as it project impacts. Therefore, no additional cumulative analysis was conducted.

3.0 Transportation Impact & Mitigation

This chapter derives and analyzes the projected VMT generated by the Proposed Project. This chapter also identifies if the Proposed Project VMT would create a significant impact, as it relates to the standards outlined in the California Environmental Quality Act (CEQA) using the OPR *Technical Advisory* and Regional *TIS Guidelines*. Finally, the chapter provides recommendations for mitigation measures that may reduce the Proposed Project's impacts to less than significant levels and evaluates the feasibility of the proposed mitigation measures.

3.1 Determination of Analysis Method

As displayed in Table 2.1, the method used to derive and evaluate project VMT is determined based on a project's Trip Generation. Trip generation rates for the Proposed Project were developed utilizing SANDAG's *(not so) Brief Guide to Vehicular Trip Generation* (SANDAG, April 2002). **Table 3.1** displays daily project trip generation for the Proposed Project.

Table 3.1 Project Trip Generation

Land Use	Units	Trip Rate	ADT
Existing Land Uses			
Flower Mart[1]	18 acres	Driveway Count	-334
Proposed Land Uses			
Apartment	197 DU	6 / DU	1,182
Condominiums	53 DU	8 / DU	424
Restaurant	3,500 SF	100 / KSF	350
Open Space	5.5 acres	2 / acre	11
Farm Stand[2]	1,232 SF[2]	40 / KSF[3]	50
Nursery	0.07 acres	90 / acre	7
		SUB-TOTAL	2,024
		TOTAL	1,690

Source: SANDAG (not so) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002
Note:
[1] Based on driveway counts collected on a midweek day in October 2019.
[2] This is net square feet from the 3,213 gross square feet for farm stand.
[3] Garden nursery rate is also consistent with specialty retail/commercial retail trip generation.

As shown in Table 3.1, the Proposed Project is anticipated to generate a total of 2,024 daily trips (gross). However, the Proposed Project would also replace the existing 334 daily trips associated with the existing Dramm and Echter Flower-Mart; therefore, the Proposed Project's net increase is 1,690 ADT.

The Proposed Project is General Plan-consistent; however, based on the Technical Advisory and Regional TIS Guidelines, the Proposed Project does not fall below the ADT screening thresholds (identified in Table 2.1) of either 110 ADT or 1,000 ADT; therefore, a VMT/Capita and VMT/Employee analysis has been conducted using the SANDAG Series 13 Travel Demand Model.

3.2 VMT Impact Analysis

To calculate the average VMT/Capita and VMT/Employee generated by the Proposed Project, the Proposed Project land uses outlined in Table 3.1, were incorporated into the SANDAG Series 13 Travel Demand Models for the Base Year (2012) and RTIP Year (2020). A Select Zone assignment was conducted for the Proposed Project Transportation Analysis Zone (TAZ) which tracked and calculated the Proposed Project

VMT by user type. VMT Analysis Results. The results of the Select Zone assignment are provided in Table 3.2. Model output results are presented in Appendix C.

As to residential uses, the Proposed Project's residential uses are anticipated to generate a VMT/Capita of 21.1 miles during the Base Year (2012) and 18.7 miles during the RTIP Year (2020), which exceeds the 85% significance threshold for all geographical areas (i.e. Region, City of Encinitas, North County, and Coastal Cities). As to commercial uses, the Proposed Project's restaurant uses are anticipated to generate a VMT/Capita of 28.8 miles during the Base Year and 27.6 miles during the RTIP Year (2020), which exceeds the 85% significance threshold for all area averages (i.e. Region, City of Encinitas, North County, and Coastal Cities). Therefore, the Proposed Project would have a potentially significant VMT-related transportation impact.

The Proposed Project's VMT/Capita and VMT/Employee are not anticipated to fall under the significance threshold as it is located in a suburban area that include single family homes with higher automobile ownership, when compared to the region, which could result in further travel demands for jobs, education, and extracurricular activity. However, the Proposed Project's uses are not quite consistent with this characteristic as it includes mulit-family residential and affordable housing units with some commercial uses to give it a mixed-use effect. These components may have a lower VMT than a typical single-family residential neighborhood. Consequently, the model could be estimating a higher VMT for the Proposed Project because it is assuming the travel patterns of the surrounding single-family neighborhood.

Additionally, it is important to note the limitations of the SANDAG model and its ability to capture project features that could reduce the Proposed Project's VMT (as specified in Table 3.2). SANDAG's Travel Demand Model is built at the regional level, making it limited to capture all the nuances of individual project sites, such as benefits of small mixed uses, affordable housing components, or the proposed travel demand management measures that will be provided by the Proposed Project.

Table 3.2 VMT Results Impact Analysis

Metric	Proposed Project	Region Average	Project % of Region Average	SI?[1]	Encinitas Average	Project % of Encinitas Average	SI?[1]	North County Average	Project % of N. County Average	SI?[1]	Coastal Cities Average	Project % of Coastal. Cities Average	SI?[1]
Base Year (2012)													
VMT/ Capita	21.1	17.6	119.9%	Y	20.8	101.4%	Y	17.3	122.0%	Y	18.8	112.2%	Y
VMT/ Employee	28.8	25.9	111.2%	Y	29.2	98.6%	Y	25.6	112.5%	Y	26.0	110.8%	Y
RTIP Year (2020)													
VMT/ Capita	18.7	16.4	114.0%	Y	18.9	98.9%	Y	15.9	117.6%	Y	17.6	106.3%	Y
VMT/ Employee	27.6	24.9	110.8%	Y	27.4	100.7%	Y	24.3	113.6%	Y	24.8	111.3%	Y

Source: SANDAG Regional Transportation Model, July 2019

Notes:
[1] Significant Impact if greater than 85% (See Section 2.4). N = No, Y = Yes

3.3 Mitigation

As noted in section 3.2, both the residential and restaurant uses within the Proposed Project would have a potentially significant VMT-related transportation impact. To reduce the VMT/Capita and VMT/Employee associated with the Proposed Project to a less than significant level, VMT reducing measures would need to be implemented to reduce project related VMT below the significance threshold. Therefore, a Transportation Demand Management (TDM) analysis was conducted using the *California Air Pollution Control Officers Associates (CAPCOA) resource document "Quantifying Greenhouse Gas Mitigation Measures", August 2010* (CAPCOA Report) to provide an understanding of the types and magnitude of TDM related features the Proposed Project would need to implement to reduce Proposed Project VMT to less than significant levels.

Chapter 7 of the CAPCOA report provides a series of Fact Sheets that outline the relevant literature used to develop the strategy, how and where the strategy is applicable, the method to apply the strategy, and sample calculations. The CAPCOA Report provides caps limiting the total VMT reductions that are allowed for each individual strategy, or category of strategies, or as a total project site. To quantify the potential reduction in project generated VMT, the VMT based reduction strategies were applied to the relevant features contained in the proposed project's design and TDM plan. The relevant CAPCOA Fact Sheets used in this analysis is included in Appendix D.

The Proposed Project plans to implement a robust TDM program to help reduce the project's VMT. The TDM program is organized in the following three (3) strategy types:

Land Use Strategies

- "Mix of Uses" - The proposed project would provide a mix of land uses, including residential, commercial and recreational uses, so that residents of the proposed project have access to basic amenities without having to travel outside of the project site. This proximity would lower vehicle miles traveled because residents can use non-automobile transportation modes to reach the various uses available within the site.
- "Affordable Housing" - The proposed project will provide 39 very-low income affordable housing units, which provide greater opportunity for lower income families to live closer to jobs centers and achieve jobs/housing match near transit, and allow a greater number of families to be accommodated within a given building footprint.

Travel and Commute Services for Residents and Employees

These strategies will provide residents with travel options other than private auto for trips to destinations outside of the Project area:

Neighborhood/Site Enhancements

- "Pedestrian Connections" - The proposed project will develop a pedestrian network that provides accommodations on-site as well as convenient pedestrian access to Leucadia Boulevard and Quail Gardens Drive.
- "E-Bike Share" - The proposed project will implement an electric bike share program to link to local Encinitas destinations and reduce motorized vehicle trips. The electric bike share program would provide for the availability of 10 electric bikes for the exclusive use of project residents to provide sustainable transportation as a substitute for individual vehicle ownership/use. In addition to the E-Bike program, high quality bike parking would be provided for project residents.

- "Multi-use Trail" – The proposed project site plan also includes a multi-use path that loops the site. Multi-use trails and paths comprise a total of nearly two miles within the site.
- "Car share dedicated parking" – Two dedicated parking spaces west of the community recreation center to accommodate car sharing opportunities will be established.

Commute Trip Reduction Strategies

- "Business Center" - The Project will include a resident business center in the community recreation center with Wi-Fi access for residents, printers/scanners, and other office amenities to enable residents to work remotely rather than commuting to work.
- "TDM Marketing Program" –
    - The Project will promote and advertise various transportation options, including promoting information and resources regarding SANDAG's iCommute program, which provides support to commuters through a variety of TDM measures, such as carpool matching services, vanpool, and other services.
    - The Project will promote formal and/or informal networks among residents for carpool/ vanpool purposes.
    - Promote available websites providing transportation options for residents.
    - Create and distribute a "new resident" information packet addressing alternative modes of transportation.
- "School Pool" - The Project will coordinate and implement a "school pool" program for project students.
- "Transit Passes Subsidies" – NCTD Regional Transit passes will be offered to the 20 on-site employees as an alternative to parking at the project site.

3.4 TDM Program Effectiveness

The CAPCOA standards were used to derive the VMT reduction anticipated to be achieved by implementation of the TDM program strategies. Each of those strategies and their respective VMT reduction percentages are described in detail below.

Land Use Strategies

Land Use Diversity

The TDM Program's land use diversity benefits are incorporated into the trip generation rates developed for the proposed project; in order to ensure that their benefits are not double-counted, land use diversity is not considered here. However, the mix of uses plays a critical role in many of the reductions calculate below.

Affordable Housing

Affordable housing provides a greater opportunity for lower-income families to live closer to job centers and achieve job/housing matches near transit, and also allows a greater number of families to be accommodated within a given building footprint. Those who live in affordable housing have lower levels of auto ownership, making them more likely to use alternative modes of transportation for their commutes.

The CAPCOA Report provides the following equation to calculate the VMT reduction percentage associated with affordable housing:

*% VMT Reduction = (4% reduction in vehicle trips per affordable unit) * (% of project units that are affordable)*

Of the 250 planned units at Fox Point Farms, 39 are proposed as affordable, resulting in a 15.6% proportion of affordable units (39 affordable units/250 total units = 22%). Applying the CAPCOA formula, this mix results in a VMT reduction of approximately **0.6%** (= 4% * 15.6%).

Neighborhood Site Enhancements

Pedestrian Network Connections

Network improvements include the development of a pedestrian network that provides accommodations on site, as well as convenient pedestrian access to Leucadia Boulevard on the south side of the Project site. This encourages people to walk instead of drive by minimizing barriers to pedestrian access and interconnectivity. CAPCOA estimates a VMT reduction of 0-2% based on the land use context and the extent of pedestrian accommodations.

Given the suburban context of the Project and the facilities provided both on site as well as connections off site, CAPCOA would indicate a 0% - 2% reduction. Because the area surrounding the project site does not include any nearby pedestrian destinations, and accordingly a VMT reduction of approximately **1%** is considered appropriate.

Electric Bike Sharing Program

Electric bike sharing provides residents the option of biking to and from their destinations instead of driving. The electric motor allows for longer travel and travel on steeper inclines than a standard bicycle would comfortably allow. Placed appropriately throughout the development, electric bikes would provide further support for the existing bike network as more people would have access to bicycles.

While CAPCOA does not attribute VMT reductions to bike sharing programs specifically (CAPCOA TRT-12), CAPCOA does address VMT reductions related to providing a Neighborhood Electric Vehicle (NEV) Network (CAPCOA SDT-3). In this case, the Fox Point Farms electric bike share program would combine a bike share program with electric bikes, which is a type of electric vehicle akin to the NEV program considered by CAPCOA.

CAPCOA recognizes a VMT reduction attributable to NEV use and ownership that also includes a travel network to accommodate NEV use, including features such as charging facilities, striping, signage, and educational tools (CAPCOA SDT-3). The forecast VMT reductions are calculated based on market penetration levels (i.e., percent of households with access to a NEV) and an average reduction in total VMT per NEV household of 12.7%. According to CAPCOA, the following is the equation to be applied in determining VMT reduction for an electric vehicle network:

*% VMT Reduction = (Percent Market Penetration * 12.7%)*

Fox Point Farms proposes to provide 10 electric bicycles; therefore, there would be 1 electric bicycle per 25 households (250 households / 10 bicycles = 25 households per bicycle) or a 0.04

market penetration rate (10 bicycles / 250 households = 0.04). Under the CAPCOA NEV formula, this would result in a VMT reduction of approximately **0.5%** (0.04 * 12.7% = 0.53%).

Car Share Service Accommodations

The dedication of on-site parking spaces for car share services does not have any specific associated VMT reductions; however, it does assist with commute trip reductions described below.

Commute Trip Reduction Strategies

Business Center

Establishing an on-site business center for project residents does not have a specific VMT reduction associated with such a program; however, it would support home-based work by providing Wi-Fi, printer/ scanner, and other office amenities.

TDM Marketing Program

To ensure that residents are aware of all alternative transportation mode options available, "new resident" information packets will be distributed to all new residents. A website also will be created with the same information so that this information is always accessible. These sources will include information regarding the bike-share kiosks, iCommute, transit and all other alternative transportation options.

The continued expansion and utilization of iCommute, SANDAG's TDM Program, would also support the successful dispensation of transportation choice information. Using "new resident" information packets, a transportation information website, and iCommute to dispense transportation information falls under CAPCOA standard TRT-7: Commute Trip Reduction Marketing. This strategy focuses on reducing the commute trips of the residents of Fox Point Farms. The CAPCOA Report provides the following equation to calculate the VMT reduction percentage associated with TDM program marketing:

*% VMT Reduction = (% reduction in commute trips) * (% population eligible) * (adjustment from commute VT (vehicle trips) to VMT) * (% home-based work VMT)*

% reduction in vehicle trips = 4% (CAPCOA page 241)
% population eligible = 50% (CAPCOA suggests an eligibility rate of 20-100%; for Fox Point Farms, 50% is used)
Adjustment from VT to VMT = 1.0 (CAPCOA page 241)
% home-based work VMT = 25%

*% VMT Reduction = 4% * 50% * 1.0 * 25% = 0.5%*

By utilizing progressive and effective strategies to spread information, implementation of a TDM marketing program is expected to result in a **0.5%** VMT reduction.

Carpool and Vanpool Support

Promoting both new and existing rideshare options to residents reduces single-occupancy vehicle trips and associated VMT. The CAPCOA Report identifies the establishment of ridesharing programs

(CAPCOA TRT-3) as reducing VMT by increasing carpooling and vanpooling. Expanding iCommute, the TDM Program for the San Diego region (operated by SANDAG and the 511 Transportation Information Service) also would contribute to VMT reductions. iCommute assists users in setting up carpools and vanpools, planning transit trips, and promoting alternative mode choices, such as biking. Expanding this service to the Fox Point Farms development area would make it more convenient for residents to use alternative modes of transportation.

While the TDM Program marketing measure also referred to promoting iCommute, the reduction captured by marketing relates to increased awareness of alternative commute options and available resources. In contrast, the reduction captured by the carpool and vanpool support measures relates to the availability of each rideshare program. While iCommute provides information about commute options and available resources, it also provides both carpool and vanpool matching services. Promoting iCommute would provide Fox Point Farms residents with all described services. Each of these TDM strategies is distinct with its own VMT reduction attributes.

As to the project site, which is designated as Suburban in context, VMT reduction is calculated based on CAPCOA standards TRT-3 and TRT-11. The TRT-3 strategy is only applicable to homebased work VMT generated by the Proposed Project site. The focus of this standard is to reduce commute trips for residents through promoting iCommute. The following is the CAPCOA equation to calculate the VMT reduction attributable to ridesharing support features:

*% VMT Reduction = (% reduction in commute VMT) * (% employees eligible) * (% homebased work VMT)*

% reduction in commute VMT = 5% (CAPCOA page 228)
% employees eligible = 20% (CAPCOA suggests an eligibility rate of 20-100%; 20% is used to be conservative)
% home-based work VMT = 25%

*% VMT Reduction = 5% * 20% * 25% = 0.25%*

Based on the projected population demographics and development characteristics of the Fox Point Farms Project, a 0.25% VMT reduction is estimated to result from promoting iCommute's carpool support program.

The TRT-11 strategy is intended for employer-sponsored vanpool programs. However, similar to the calculation above, commute trips for residents could be reduced through promoting iCommute. The following is the CAPCOA equation to calculate the VMT reduction attributable to the vanpool program.

*% VMT Reduction = (% shift in vanpool mode share of commute trips) * (% employees eligible) * (adjustments from vanpool mode share to commute VMT) * (% home-based work VMT)*

% shift in vanpool mode share = 5% (CAPCOA suggests a range of 2-20%; 5% is used to be conservative)
% employees eligible = 20% (CAPCOA suggests an eligibility rate of 20-100%; 20% is used to be conservative)

Adjustments from vanpool mode share to commute VMT = 0.67 (CAPCOA page 254)
% home-based work VMT = 25%

*% VMT Reduction = 5% * 20% * 0.67 * 25% = 0.17%*

Based on the projected population demographics and development characteristics of the Fox Point Farms Project, a 0.17% VMT reduction is estimated to result from promoting iCommute's vanpool support program, which is distinct from the other iCommute strategies as stated above and, therefore, results in VMT reductions additional to the other strategies.

The combined reduction of both programs is calculated by multiplying the reductions, resulting in a combined **0.42%** reduction (1 - (1 - 0.25%) * (1 - 0.17%) = 0.42%).

School Pool Support

CAPCOA TRT-10 states that the implementation of a school pool program involves the coordination and planning of parents to transport students to off-site public or private schools, or to schools where students cannot walk or bike but do not meet the requirements for bussing. The degree to which the school pool program would reduce school VMT (i.e., those vehicles miles generated by student travel to and from a school) ranges from 7.2% to 15.8%, depending on the number of families participating in the program. The range of family participation in a school pool program according to CAPCOA TRT-10 is between 16% and 35%. Based on the CAPCOA methodology, the reduction in school VMT after the implementation of a school pool program is calculated as follows:

*% Reduction in School VMT = participation rate of families * 45% (CAPCOA TRT-10 adjustment to convert from participation to daily VMT to annual school VMT) * % of home-based school VMT*

Participation rate of families = 16% (CAPCOA TRT-10 indicates that typical participation rates are 16-35%; for a moderate implementation 16% is suggested)
% of home-based school VMT outside the Project site = 10%

*%VMT Reduction = 16% * 45% * 10% = 0.7%*

Based on this methodology provided by CAPCOA and the calculations, the calculated VMT reduction for the implementation of a school pool program is **0.7%**, the percentage which has been applied to the overall VMT reduction calculation.

Transit Pass Subsidies

CAPCOA associates certain levels of transit fare subsidies with levels of employee commuter participation (CAPCOA TRT-4). For a subsidy of $2.98 per person per day incentives 16.4% reduction in commute VMT.

The CAPCOA report provides the following formula for calculating the percent VMT reduction associated with employee transit fare subsidies of $2.98 per person per day:

*% VMT Reduction = (16.4% reduction in commute vehicle trips) *(100% employees eligible) * (adjustment from commute vehicle trips to overall VMT) * (25% home-based work VMT)*

*% VMT Reduction = 16.4% * 100% * 1% * 25% = 4.1%*

Based on this methodology provided by CAPCOA and the calculations, the calculated VMT reduction for the implementation of Transit Pass Subsides is **4.1%**, the percentage which has been applied to the overall VMT reduction calculation.

3.4.1 Proposed Project Impacts

When determining the overall VMT reduction associated with the project, the VMT reduction for each individual strategy should be dampened, which is adjusted to reflect that some of the strategies of the strategies may be redundant or applicable to the same populations. Consequently, the total VMT reduction that would be associated with these measures would be 4.1% for employment related VMT and 1.0% for residential related VMT. **Table 3.3** summarizes the reduction percentages needed to reduce the Proposed Project's VMT/Capita and its VMT/Employee to less-than-significant.

Table 3.3 VMT Percentage Reduction Requirements by Geographical Area

Metric	Proposed Project's TDM VMT Reduction	Geographical Area							
		Region Average		City of Encinitas		North County		Coastal Cities	
		%	Mit?[1]	%	Mit?	%	Mit?	%	Mit?
Base Year (2012)									
VMT/ Capita	1.0%	40.7%	N	19.2%	N	43.5%	N	31.9%	N
VMT/ Employee	4.1%	30.9%	N	16.1%	N	32.1%	N	30.3%	N
RTIP Year (2020)									
VMT/ Capita	1.0%	34.5%	N	16.1%	N	38.5%	N	24.7%	N
VMT/ Employee	4.1%	30.9%	N	18.5%	N	33.3%	N	30.8%	N

Note:
[1] Mit? = Mitigated?; N = No, Y = Yes

As shown, the implementation of these TDM measures would not reduce the project related impact to less than significance. Therefore, the Proposed Project would still have significant and unavoidable transportation related impact for CEQA purposes since no feasible mitigation measures could be identified.

Appendix A
OPR Technical Advisory

TECHNICAL ADVISORY

ON EVALUATING TRANSPORTATION IMPACTS IN CEQA

December 2018

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A. Introduction

This technical advisory is one in a series of advisories provided by the Governor's Office of Planning and Research (OPR) as a service to professional planners, land use officials, and CEQA practitioners. OPR issues technical assistance on issues that broadly affect the practice of land use planning and the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). (Gov. Code, § 65040, subds. (g), (l), (m).) The purpose of this document is to provide advice and recommendations, which agencies and other entities may use at their discretion. This document does not alter lead agency discretion in preparing environmental documents subject to CEQA. This document should not be construed as legal advice.

Senate Bill 743 (Steinberg, 2013), which was codified in Public Resources Code section 21099, required changes to the guidelines implementing CEQA (CEQA Guidelines) (Cal. Code Regs., Title 14, Div. 6, Ch. 3, § 15000 et seq.) regarding the analysis of transportation impacts. As one appellate court recently explained: "During the last 10 years, the Legislature has charted a course of long-term sustainability based on denser infill development, reduced reliance on individual vehicles and improved mass transit, all with the goal of reducing greenhouse gas emissions. Section 21099 is part of that strategy . . . ." (*Covina Residents for Responsible Development v. City of Covina* (2018) 21 Cal.App.5th 712, 729.) Pursuant to Section 21099, the criteria for determining the significance of transportation impacts must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." (*Id.*, subd. (b)(1); see generally, adopted CEQA Guidelines, § 15064.3, subd. (b) [Criteria for Analyzing Transportation Impacts].) To that end, in developing the criteria, OPR has proposed, and the California Natural Resources Agency (Agency) has certified and adopted, changes to the CEQA Guidelines that identify vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts. With the California Natural Resources Agency's certification and adoption of the changes to the CEQA Guidelines, automobile delay, as measured by "level of service" and other similar metrics, generally no longer constitutes a significant environmental effect under CEQA. (Pub. Resources Code, § 21099, subd. (b)(3).)

This advisory contains technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures. Again, OPR provides this Technical Advisory as a resource for the public to use at their discretion. OPR is not enforcing or attempting to enforce any part of the recommendations contained herein. (Gov. Code, § 65035 ["It is not the intent of the Legislature to vest in the Office of Planning and Research any direct operating or regulatory powers over land use, public works, or other state, regional, or local projects or programs."].)

This December 2018 technical advisory is an update to the advisory it published in April 2018. OPR will continue to monitor implementation of these new provisions and may update or supplement this advisory in response to new information and advancements in modeling and methods.

B. Background

VMT and Greenhouse Gas Emissions Reduction. Senate Bill 32 (Pavley, 2016) requires California to reduce greenhouse gas (GHG) emissions 40 percent below 1990 levels by 2030, and Executive Order B-16-12 provides a target of 80 percent below 1990 emissions levels for the transportation sector by 2050. The transportation sector has three major means of reducing GHG emissions: increasing vehicle efficiency, reducing fuel carbon content, and reducing the amount of vehicle travel. The California Air Resources Board (CARB) has provided a path forward for achieving these emissions reductions from the transportation sector in its 2016 Mobile Source Strategy. CARB determined that it will not be possible to achieve the State's 2030 and post-2030 emissions goals without reducing VMT growth. Further, in its 2018 Progress Report on California's Sustainable Communities and Climate Protection Act, CARB found that despite the State meeting its 2020 climate goals, "emissions from statewide passenger vehicle travel per capita [have been] increasing and going in the wrong direction," and "California cannot meet its [long-term] climate goals without curbing growth in single-occupancy vehicle activity."[1] CARB also found that "[w]ith emissions from the transportation sector continuing to rise despite increases in fuel efficiency and decreases in the carbon content of fuel, California will not achieve the necessary greenhouse gas emissions reductions to meet mandates for 2030 and beyond without significant changes to how communities and transportation systems are planned, funded, and built."[2]

Thus, to achieve the State's long-term climate goals, California needs to reduce per capita VMT. This can occur under CEQA through VMT mitigation. Half of California's GHG emissions come from the transportation sector[3], therefore, reducing VMT is an effective climate strategy, which can also result in co-benefits.[4] Furthermore, without early VMT mitigation, the state may follow a path that meets GHG targets in the early years, but finds itself poorly positioned to meet more stringent targets later. For example, in absence of VMT analysis and mitigation in CEQA, lead agencies might rely upon verifiable offsets for GHG mitigation, ignoring the longer-term climate change impacts resulting from land use development and infrastructure investment decisions. As stated in CARB's 2017 Scoping Plan:

> "California's future climate strategy will require increased focus on integrated land use planning to support livable, transit-connected communities, and conservation of agricultural and other lands. Accommodating population and economic growth through travel- and energy-efficient land use provides GHG-efficient growth, reducing GHGs from both transportation and building energy use. GHGs can be further reduced at the project level through implementing energy-efficient construction and travel demand management approaches."[5] (*Id.* at p. 102.)

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[1] California Air Resources Board (Nov. 2018) *2018 Progress Report on California's Sustainable Communities and Climate Protection Act*, pp. 4, 5, available at https://ww2.arb.ca.gov/sites/default/files/2018-11/Final2018Report_SB150_112618_02_Report.pdf.
[2] *Id.*, p. 28.
[3] See https://ca50million.ca.gov/transportation/
[4] Fang et al. (2017) *Cutting Greenhouse Gas Emissions Is Only the Beginning: A Literature Review of the Co-Benefits of Reducing Vehicle Miles Traveled*.
[5] California Air Resources Board (Nov. 2017) *California's 2017 Climate Change Scoping Plan*, p. 102, available at https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

In light of this, the 2017 Scoping Plan describes and quantifies VMT reductions needed to achieve our long-term GHG emissions reduction goals, and specifically points to the need for statewide deployment of the VMT metric in CEQA:

> "Employing VMT as the metric of transportation impact statewide will help to ensure GHG reductions planned under SB 375 will be achieved through on-the-ground development, and will also play an important role in creating the additional GHG reductions needed beyond SB 375 across the State. Implementation of this change will rely, in part, on local land use decisions to reduce GHG emissions associated with the transportation sector, both at the project level, and in long-term plans (including general plans, climate action plans, specific plans, and transportation plans) and supporting sustainable community strategies developed under SB 375."[6]

VMT and Other Impacts to Health and Environment. VMT mitigation also creates substantial benefits (sometimes characterized as "co-benefits" to GHG reduction) in both in the near-term and the long-term. Beyond GHG emissions, increases in VMT also impact human health and the natural environment. Human health is impacted as increases in vehicle travel lead to more vehicle crashes, poorer air quality, increases in chronic diseases associated with reduced physical activity, and worse mental health. Increases in vehicle travel also negatively affect other road users, including pedestrians, cyclists, other motorists, and many transit users. The natural environment is impacted as higher VMT leads to more collisions with wildlife and fragments habitat. Additionally, development that leads to more vehicle travel also tends to consume more energy, water, and open space (including farmland and sensitive habitat). This increase in impermeable surfaces raises the flood risk and pollutant transport into waterways.[7]

VMT and Economic Growth. While it was previously believed that VMT growth was a necessary component of economic growth, data from the past two decades shows that economic growth is possible without a concomitant increase in VMT. (Figure 1.) Recent research shows that requiring development projects to mitigate LOS may actually reduce accessibility to destinations and impede economic growth.[8,9]

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[6] *Id.* at p. 76.

[7] Fang et al. (2017) *Cutting Greenhouse Gas Emissions Is Only the Beginning: A Literature Review of the Co-Benefits of Reducing Vehicle Miles Traveled*, available at https://ncst.ucdavis.edu/wp-content/uploads/2017/03/NCST-VMT-Co-Benefits-White-Paper_Fang_March-2017.pdf.

[8] Haynes et al. (Sept. 2015) *Congested Development: A Study of Traffic Delays, Access, and Economic Activity in Metropolitan Los Angeles*, available at http://www.its.ucla.edu/wp-content/uploads/sites/6/2015/11/Haynes_Congested-Development_1-Oct-2015_final.pdf.

[9] Osman et al. (Mar. 2016) *Not So Fast: A Study of Traffic Delays, Access, and Economic Activity in the San Francisco Bay Area*, available at http://www.its.ucla.edu/wp-content/uploads/sites/6/2016/08/Taylor-Not-so-Fast-04-01-2016_final.pdf.

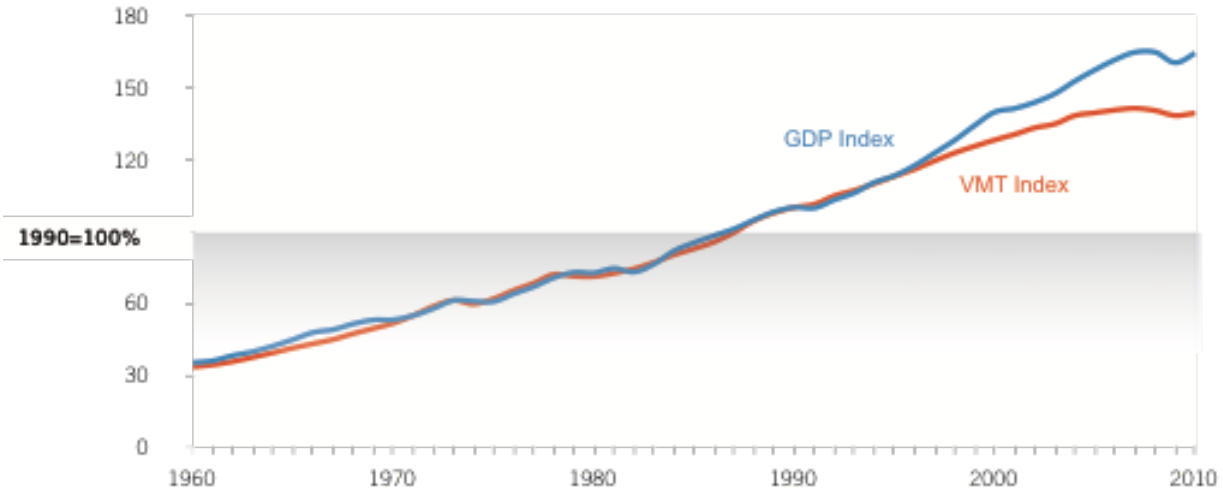


Figure 1. Kooshian and Winkelman (2011) *VMT and Gross Domestic Product (GDP), 1960-2010*.

C. Technical Considerations in Assessing Vehicle Miles Traveled

Many practitioners are familiar with accounting for VMT in connection with long-range planning, or as part of the CEQA analysis of a project's greenhouse gas emissions or energy impacts. This document provides technical information on how to assess VMT as part of a transportation impacts analysis under CEQA. Appendix 1 provides a description of which VMT to count and options on how to count it. Appendix 2 provides information on induced travel resulting from roadway capacity projects, including the mechanisms giving rise to induced travel, the research quantifying it, and information on additional approaches for assessing it.

1. Recommendations Regarding Methodology

Proposed Section 15064.3 explains that a "lead agency may use models to estimate a project's vehicle miles traveled . . . ." CEQA generally defers to lead agencies on the choice of methodology to analyze impacts. (*Santa Monica Baykeeper v. City of Malibu* (2011) 193 Cal.App.4th 1538, 1546; see *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 409 ["the issue is not whether the studies are irrefutable or whether they could have been better" … rather, the "relevant issue is only whether the studies are sufficiently credible to be considered" as part of the lead agency's overall evaluation].) This section provides suggestions to lead agencies regarding methodologies to analyze VMT associated with a project.

Vehicle Types. Proposed Section 15064.3, subdivision (a), states, "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks. Heavy-duty truck VMT could be included for modeling convenience and ease of calculation (for example, where models or data provide combined auto and heavy truck VMT). For an apples-to-apples

comparison, vehicle types considered should be consistent across project assessment, significance thresholds, and mitigation.

Residential and Office Projects. Tour- and trip-based approaches[10] offer the best methods for assessing VMT from residential/office projects and for comparing those assessments to VMT thresholds. These approaches also offer the most straightforward methods for assessing VMT reductions from mitigation measures for residential/office projects. When available, tour-based assessment is ideal because it captures travel behavior more comprehensively. But where tour-based tools or data are not available for all components of an analysis, a trip-based assessment of VMT serves as a reasonable proxy.

Models and methodologies used to calculate thresholds, estimate project VMT, and estimate VMT reduction due to mitigation should be comparable. For example:

- A tour-based assessment of project VMT should be compared to a tour-based threshold, or a trip-based assessment to a trip-based VMT threshold.
- Where a travel demand model is used to determine thresholds, the same model should also be used to provide trip lengths as part of assessing project VMT.
- Where only trip-based estimates of VMT reduction from mitigation are available, a trip-based threshold should be used, and project VMT should be assessed in a trip-based manner.

When a trip-based method is used to analyze a residential project, the focus can be on home-based trips. Similarly, when a trip-based method is used to analyze an office project, the focus can be on home-based work trips.

When tour-based models are used to analyze an office project, either employee work tour VMT or VMT from all employee tours may be attributed to the project. This is because workplace location influences overall travel. For consistency, the significance threshold should be based on the same metric: either employee work tour VMT or VMT from all employee tours.

For office projects that feature a customer component, such as a government office that serves the public, a lead agency can analyze the customer VMT component of the project using the methodology for retail development (see below).

Retail Projects. Generally, lead agencies should analyze the effects of a retail project by assessing the change in total VMT[11] because retail projects typically re-route travel from other retail destinations. A retail project might lead to increases or decreases in VMT, depending on previously existing retail travel patterns.

[10] See Appendix 1, *Considerations About Which VMT to Count,* for a description of these approaches.
[11] See Appendix 1, *Considerations About Which VMT to Count, "*Assessing Change in Total VMT" section, for a description of this approach.

Considerations for All Projects. Lead agencies should not truncate any VMT analysis because of jurisdictional or other boundaries, for example, by failing to count the portion of a trip that falls outside the jurisdiction or by discounting the VMT from a trip that crosses a jurisdictional boundary. CEQA requires environmental analyses to reflect a "good faith effort at full disclosure." (CEQA Guidelines, § 15151.) Thus, where methodologies exist that can estimate the full extent of vehicle travel from a project, the lead agency should apply them to do so. Where those VMT effects will grow over time, analyses should consider both a project's short-term and long-term effects on VMT.

Combining land uses for VMT analysis is not recommended. Different land uses generate different amounts of VMT, so the outcome of such an analysis could depend more on the mix of uses than on their travel efficiency. As a result, it could be difficult or impossible for a lead agency to connect a significance threshold with an environmental policy objective (such as a target set by law), inhibiting the CEQA imperative of identifying a project's significant impacts and providing mitigation where feasible. Combining land uses for a VMT analysis could streamline certain mixes of uses in a manner disconnected from policy objectives or environmental outcomes. Instead, OPR recommends analyzing each use separately, or simply focusing analysis on the dominant use, and comparing each result to the appropriate threshold. Recommendations for methods of analysis and thresholds are provided below. In the analysis of each use, a mixed-use project should take credit for internal capture.

Any project that includes in its geographic bounds a portion of an existing or planned Transit Priority Area (i.e., the project is within a ½ mile of an existing or planned major transit stop or an existing stop along a high quality transit corridor) may employ VMT as its primary metric of transportation impact for the entire project. (See Pub. Resources Code, § 21099, subds. (a)(7), (b)(1).)

Cumulative Impacts. A project's cumulative impacts are based on an assessment of whether the "incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." (Pub. Resources Code, § 21083, subd. (b)(2); see CEQA Guidelines, § 15064, subd. (h)(1).) When using an absolute VMT metric, i.e., total VMT (as recommended below for retail and transportation projects), analyzing the combined impacts for a cumulative impacts analysis may be appropriate. However, metrics such as VMT per capita or VMT per employee, i.e., metrics framed in terms of efficiency (as recommended below for use on residential and office projects), cannot be summed because they employ a denominator. A project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plans would have no cumulative impact distinct from the project impact. Accordingly, a finding of a less-than-significant project impact would imply a less than significant cumulative impact, and vice versa. This is similar to the analysis typically conducted for greenhouse gas emissions, air quality impacts, and impacts that utilize plan compliance as a threshold of significance. (See *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal.4th 204, 219, 223; CEQA Guidelines, § 15064, subd. (h)(3).)

D. General Principles to Guide Consideration of VMT

SB 743 directs OPR to establish specific "criteria for determining the significance of transportation impacts of projects[.]" (Pub. Resources Code, § 21099, subd. (b)(1).) In establishing this criterion, OPR was guided by the general principles contained within CEQA, the CEQA Guidelines, and applicable case law.

To assist in the determination of significance, many lead agencies rely on "thresholds of significance." The CEQA Guidelines define a "threshold of significance" to mean "an identifiable **quantitative, qualitative[12] or performance level** of a particular environmental effect, non-compliance with which means the effect will ***normally*** be determined to be significant by the agency and compliance with which means the effect ***normally*** will be determined to be less than significant." (CEQA Guidelines, § 15064.7, subd. (a) (emphasis added).) Lead agencies have discretion to develop and adopt their own, or rely on thresholds recommended by other agencies, "provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence." (*Id*. at subd. (c); *Save Cuyama Valley v. County of Santa Barbara* (2013) 213 Cal.App.4th 1059, 1068.) Substantial evidence means "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached." (*Id*. at § 15384 (emphasis added); *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1108-1109.)

Additionally, the analysis leading to the determination of significance need not be perfect. The CEQA Guidelines describe the standard for adequacy of environmental analyses:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to **make a decision which intelligently takes account of environmental consequences**. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is **reasonably feasible**. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The **courts have looked not for perfection** but for **adequacy**, **completeness**, and a **good faith effort** at full disclosure.

(CEQA Guidelines, § 15151 (emphasis added).)

These general principles guide OPR's recommendations regarding thresholds of significance for VMT set forth below.

[12] Generally, qualitative analyses should only be conducted when methods do not exist for undertaking a quantitative analysis.

E. Recommendations Regarding Significance Thresholds

As noted above, lead agencies have the discretion to set or apply their own thresholds of significance. (*Center for Biological Diversity v. California Dept. of Fish & Wildlife* (2015) 62 Cal.4th 204, 218-223 [lead agency had discretion to use compliance with AB 32's emissions goals as a significance threshold]; *Save Cuyama Valley v. County of Santa Barbara* (2013) 213 Cal.App.4th at p. 1068.) However, Section 21099 of the Public Resources Code states that the criteria for determining the significance of transportation impacts must promote: (1) reduction of greenhouse gas emissions; (2) development of multimodal transportation networks; and (3) a diversity of land uses. It further directed OPR to prepare and develop criteria for determining significance. (Pub. Resources Code, § 21099, subd. (b)(1).) This section provides OPR's suggested thresholds, as well as considerations for lead agencies that choose to adopt their own

The VMT metric can support the three statutory goals: "the reduction of greenhouse gas emissions, the development of multimodal transportation networks, ***and*** a diversity of land uses." (Pub. Resources Code, § 21099, subd. (b)(1), emphasis added.) However, in order for it to promote and support all three, lead agencies should select a significance threshold that aligns with state law on all three. State law concerning the development of multimodal transportation networks and diversity of land uses requires planning for and prioritizing increases in complete streets and infill development, but does not mandate a particular depth of implementation that could translate into a particular threshold of significance. Meanwhile, the State has clear quantitative targets for GHG emissions reduction set forth in law and based on scientific consensus, and the depth of VMT reduction needed to achieve those targets has been quantified. Tying VMT thresholds to GHG reduction also supports the two other statutory goals. Therefore, to ensure adequate analysis of transportation impacts, OPR recommends using quantitative VMT thresholds linked to GHG reduction targets when methods exist to do so.

Various legislative mandates and state policies establish quantitative greenhouse gas emissions reduction targets. For example:

- Assembly Bill 32 (2006) requires statewide GHG emissions reductions to 1990 levels by 2020 and continued reductions beyond 2020.

- Senate Bill 32 (2016) requires at least a 40 percent reduction in GHG emissions from 1990 levels by 2030.

- Pursuant to Senate Bill 375 (2008), the California Air Resources Board GHG emissions reduction targets for metropolitan planning organizations (MPOs) to achieve based on land use patterns and transportation systems specified in Regional Transportation Plans and Sustainable Community Strategies (RTP/SCS). Current targets for the State's largest MPOs call for a 19 percent reduction in GHG emissions from cars and light trucks from 2005 emissions levels by 2035.

- Executive Order B-30-15 (2015) sets a GHG emissions reduction target of 40 percent below 1990 levels by 2030.

- Executive Order S-3-05 (2005) sets a GHG emissions reduction target of 80 percent below 1990 levels by 2050.

- Executive Order B-16-12 (2012) specifies a GHG emissions reduction target of 80 percent below 1990 levels by 2050 specifically for transportation.

- Executive Order B-55-18 (2018) established an additional statewide goal of achieving carbon neutrality as soon as possible, but no later than 2045, and maintaining net negative emissions thereafter. It states, "The California Air Resources Board shall work with relevant state agencies to develop a framework for implementation and accounting that tracks progress toward this goal."

- Senate Bill 391 requires the California Transportation Plan to support 80 percent reduction in GHGs below 1990 levels by 2050.

- The *California Air Resources Board Mobile Source Strategy* (2016) describes California's strategy for containing air pollutant emissions from vehicles, and quantifies VMT growth compatible with achieving state targets.

- The California Air Resources Board's *2017 Climate Change Scoping Plan Update: The Strategy for Achieving California's 2030 Greenhouse Gas Target* describes California's strategy for containing GHG emissions from vehicles, and quantifies VMT growth compatible with achieving state targets.

Considering these various targets, the California Supreme Court observed:

> Meeting our statewide reduction goals does not preclude all new development. Rather, the Scoping Plan … assumes continued growth and depends on increased efficiency and conservation in land use and transportation from all Californians.

(*Center for Biological Diversity v. California Dept. of Fish & Wildlife*, *supra*, 62 Cal.4th at p. 220.) Indeed, the Court noted that when a lead agency uses consistency with climate goals as a way to determine significance, particularly for long-term projects, the lead agency must consider the project's effect on meeting long-term reduction goals. (*Ibid*.) And more recently, the Supreme Court stated that "CEQA requires public agencies . . . to ensure that such analysis stay in step with evolving scientific knowledge and state regulatory schemes." (*Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497, 504.)

Meeting the targets described above will require substantial reductions in existing VMT per capita to curb GHG emissions and other pollutants. But targets for overall GHG emissions reduction do not translate directly into VMT thresholds for individual projects for many reasons, including:

- Some, but not all, of the emissions reductions needed to achieve those targets could be accomplished by other measures, including increased vehicle efficiency and decreased fuel carbon content. The CARB's *First Update to the Climate Change Scoping Plan* explains:

"Achieving California's long-term criteria pollutant and GHG emissions goals will require four strategies to be employed: (1) improve vehicle efficiency and develop zero emission technologies, (2) reduce the carbon content of fuels and provide market support to get these lower-carbon fuels into the marketplace, (3) **plan and build communities to reduce vehicular GHG emissions and provide more transportation options, and (4) improve the efficiency and throughput of existing transportation systems.**"[13] CARB's *2018 Progress Report on California's Sustainable Communities and Climate Protection Act* states on page 28 that "California cannot meet its climate goals without curbing growth in single-occupancy vehicle activity." In other words, vehicle efficiency and better fuels are necessary, but insufficient, to address the GHG emissions from the transportation system. Land use patterns and transportation options also will need to change to support reductions in vehicle travel/VMT.

- New land use projects alone will not sufficiently reduce per-capita VMT to achieve those targets, nor are they expected to be the sole source of VMT reduction.

- Interactions between land use projects, and also between land use and transportation projects, existing and future, together affect VMT.

- Because location within the region is the most important determinant of VMT, in some cases, streamlining CEQA review of projects in travel efficient locations may be the most effective means of reducing VMT.

- When assessing climate impacts of some types of land use projects, use of an efficiency metric (e.g., per capita, per employee) may provide a better measure of impact than an absolute numeric threshold. (*Center for Biological Diversity*, *supra*.)

Public Resources Code section 21099 directs OPR to propose criteria for determining the significance of transportation impacts. In this Technical Advisory, OPR provides its recommendations to assist lead agencies in selecting a significance threshold that may be appropriate for their particular projects. While OPR's Technical Advisory is not binding on public agencies, CEQA allows lead agencies to "consider thresholds of significance . . . recommended by other public agencies, provided the decision to adopt those thresholds is supported by substantial evidence." (CEQA Guidelines, § 15064.7, subd. (c).) Based on OPR's extensive review of the applicable research, and in light of an assessment by the California Air Resources Board quantifying the need for VMT reduction in order to meet the State's long-term climate goals, **OPR recommends that a per capita or per employee VMT that is fifteen percent below that of existing development may be a reasonable threshold**.

Fifteen percent reductions in VMT are achievable at the project level in a variety of place types.[14]

Moreover, a fifteen percent reduction is consistent with SB 743's direction to OPR to select a threshold that will help the State achieve its climate goals. As described above, section 21099 states that the

[13] California Air Resources Board (May 2014) *First Update to the Climate Change Scoping Plan*, p. 46 (emphasis added).
[14] CAPCOA (2010) *Quantifying Greenhouse Gas Mitigation Measures*, p. 55, available at http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

criteria for determining significance must "promote the reduction in greenhouse gas emissions." In its document *California Air Resources Board 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals*[15], CARB assesses VMT reduction per capita consistent with its evidence-based modeling scenario that would achieve State climate goals of 40 percent GHG emissions reduction from 1990 levels by 2030 and 80 percent GHG emissions reduction levels from 1990 by 2050. Applying California Department of Finance population forecasts, CARB finds per-capita light-duty vehicle travel would need to be approximately 16.8 percent lower than existing, and overall per-capita vehicle travel would need to be approximately 14.3 percent lower than existing levels under that scenario. Below these levels, a project could be considered low VMT and would, on that metric, be consistent with 2017 Scoping Plan Update assumptions that achieve climate state climate goals.

CARB finds per capita vehicle travel would need to be kept below what today's policies and plans would achieve.

CARB's assessment is based on data in the 2017 Scoping Plan Update and 2016 Mobile Source Strategy. In those documents, CARB previously examined the relationship between VMT and the state's GHG emissions reduction targets. The Scoping Plan finds:

> "While the State can do more to accelerate and incentivize these local decisions, local actions that reduce VMT are also necessary to meet transportation sector-specific goals and achieve the 2030 target under SB 32. Through developing the Scoping Plan, CARB staff is more convinced than ever that, in addition to achieving GHG reductions from cleaner fuels and vehicles, California must also reduce VMT. Stronger SB 375 GHG reduction targets will enable the State to make significant progress toward needed reductions, but alone will not provide the VMT growth reductions needed; there is a gap between what SB 375 can provide and what is needed to meet the State's 2030 and 2050 goals."[16]

Note that, at present, consistency with RTP/SCSs does not necessarily lead to a less-than-significant VMT impact.[17] As the Final 2017 Scoping Plan Update states,

> VMT reductions are necessary to achieve the 2030 target and must be part of any strategy evaluated in this Plan. Stronger SB 375 GHG reduction targets will enable the State to make significant progress toward this goal, but alone will not provide all of the VMT growth reductions that will be needed. There is a gap between what SB 375 can provide and what is needed to meet the State's 2030 and 2050 goals."[18]

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[15] California Air Resources Board (Jan. 2019) *California Air Resources Board 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals*, available at https://ww2.arb.ca.gov/resources/documents/carb-2017-scoping-plan-identified-vmt-reductions-and-relationship-state-climate.

[16] California Air Resources Board (Nov. 2017) *California's 2017 Climate Change Scoping Plan*, p. 101.

[17] California Air Resources Board (Feb. 2018) *Updated Final Staff Report: Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets*, Figure 3, p. 35, available at https://www.arb.ca.gov/cc/sb375/sb375_target_update_final_staff_report_feb2018.pdf.

[18] California Air Resources Board (Nov. 2017) *California's 2017 Climate Change Scoping Plan*, p. 75.

Also, in order to capture the full effects of induced travel resulting from roadway capacity projects, an RTP/SCS would need to include an assessment of land use effects of those projects, and the effects of those land uses on VMT. (See section titled "*Estimating VMT Impacts from Transportation Projects"* below.) RTP/SCSs typically model VMT using a collaboratively-developed land use "vision" for the region's land use, rather than studying the effects on land use of the proposed transportation investments.

In summary, achieving 15 percent lower per capita (residential) or per employee (office) VMT than existing development is both generally achievable and is supported by evidence that connects this level of reduction to the State's emissions goals.

1. Screening Thresholds for Land Use Projects

Many agencies use "screening thresholds" to quickly identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study. (See e.g., CEQA Guidelines, §§ 15063(c)(3)(C), 15128, and Appendix G.) As explained below, this technical advisory suggests that lead agencies may screen out VMT impacts using project size, maps, transit availability, and provision of affordable housing.

Screening Threshold for Small Projects

Many local agencies have developed screening thresholds to indicate when detailed analysis is needed. Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day[19] generally may be assumed to cause a less-than-significant transportation impact.

Map-Based Screening for Residential and Office Projects

Residential and office projects that locate in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT. Maps created with VMT data, for example from a travel survey or a travel demand model, can illustrate areas that are

[19] CEQA provides a categorical exemption for existing facilities, including additions to existing structures of up to 10,000 square feet, so long as the project is in an area where public infrastructure is available to allow for maximum planned development and the project is not in an environmentally sensitive area. (CEQA Guidelines, § 15301, subd. (e)(2).) Typical project types for which trip generation increases relatively linearly with building footprint (i.e., general office building, single tenant office building, office park, and business park) generate or attract an additional 110-124 trips per 10,000 square feet. Therefore, absent substantial evidence otherwise, it is reasonable to conclude that the addition of 110 or fewer trips could be considered not to lead to a significant impact.

currently below threshold VMT (see recommendations below). Because new development in such locations would likely result in a similar level of VMT, such maps can be used to screen out residential and office projects from needing to prepare a detailed VMT analysis.

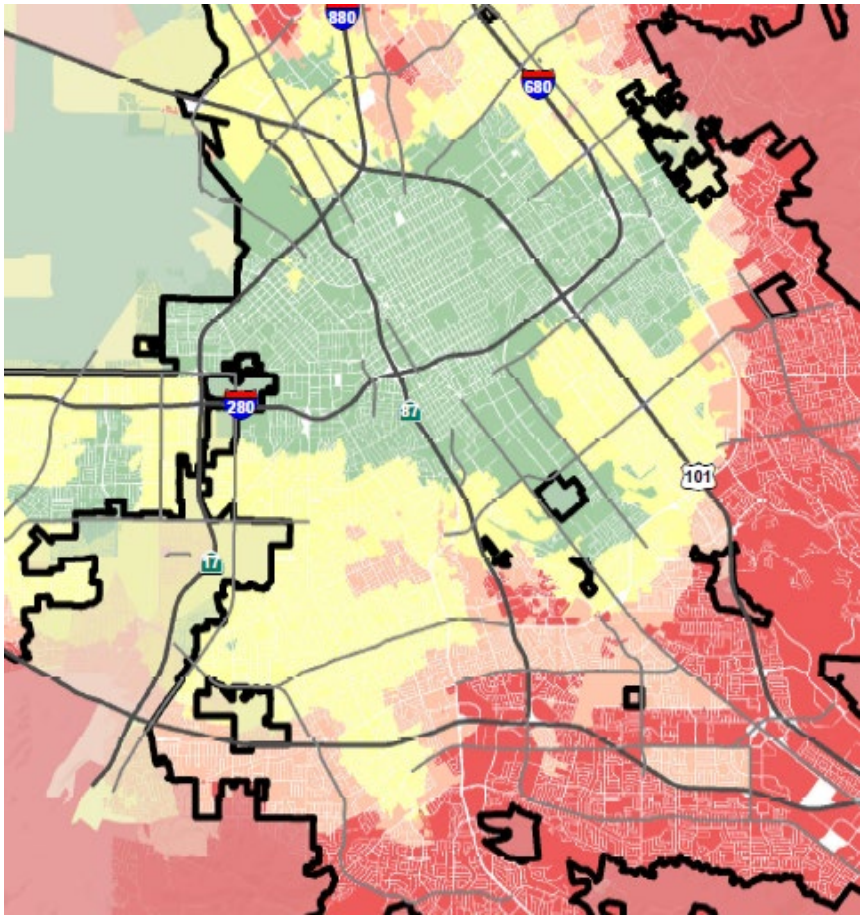


Figure 2. Example map of household VMT that could be used to delineate areas eligible to receive streamlining for VMT analysis. (Source: City of San José, Department of Transportation, draft output of City Transportation Model.)

Presumption of Less Than Significant Impact Near Transit Stations

Proposed CEQA Guideline Section 15064.3, subdivision (b)(1), states that lead agencies generally should presume that certain projects (including residential, retail, and office projects, as well as projects that are a mix of these uses) proposed within ½ mile of an existing major transit stop[20] or an existing stop

[20] Pub. Resources Code, § 21064.3 ("'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.").

along a high quality transit corridor[21] will have a less-than-significant impact on VMT. This presumption would not apply, however, if project-specific or location-specific information indicates that the project will still generate significant levels of VMT. For example, the presumption might not be appropriate if the project:

- Has a Floor Area Ratio (FAR) of less than 0.75
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking)
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization)
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units

A project or plan near transit which replaces affordable residential units[22] with a smaller number of moderate- or high-income residential units may increase overall VMT because the increase in VMT of displaced residents could overwhelm the improvements in travel efficiency enjoyed by new residents.[23]

If any of these exceptions to the presumption might apply, the lead agency should conduct a detailed VMT analysis to determine whether the project would exceed VMT thresholds (see below).

Presumption of Less Than Significant Impact for Affordable Residential Development

Adding affordable housing to infill locations generally improves jobs-housing match, in turn shortening commutes and reducing VMT.[24,25] Further, "… low-wage workers in particular would be more likely to choose a residential location close to their workplace, if one is available."[26] In areas where existing jobs-housing match is closer to optimal, low income housing nevertheless generates less VMT than market-

[21] Pub. Resources Code, § 21155 ("For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.").
[22] Including naturally-occurring affordable residential units.
[23] Chapple et al. (2017) *Developing a New Methodology for Analyzing Potential Displacement,* Chapter 4, pp. 159-160, available at https://www.arb.ca.gov/research/apr/past/13-310.pdf.
[24] Karner and Benner (2016) *The convergence of social equity and environmental sustainability: Jobs-housing fit and commute distance* ("[P]olicies that advance a more equitable distribution of jobs and housing by linking the affordability of locally available housing with local wage levels are likely to be associated with reduced commuting distances").
[25] Karner and Benner (2015) *Low-wage jobs-housing fit: identifying locations of affordable housing shortages.*
[26] Karner and Benner (2015) *Low-wage jobs-housing fit: identifying locations of affordable housing shortages.*

rate housing.[27,28] Therefore, a project consisting of a high percentage of affordable housing may be a basis for the lead agency to find a less-than-significant impact on VMT. Evidence supports a presumption of less than significant impact for a 100 percent affordable residential development (or the residential component of a mixed-use development) in infill locations. Lead agencies may develop their own presumption of less than significant impact for residential projects (or residential portions of mixed use projects) containing a particular amount of affordable housing, based on local circumstances and evidence. Furthermore, a project which includes any affordable residential units may factor the effect of the affordability on VMT into the assessment of VMT generated by those units.

2. Recommended Numeric Thresholds for Residential, Office, and Retail Projects

Recommended threshold for residential projects: A proposed project exceeding a level of 15 percent below existing VMT per capita may indicate a significant transportation impact. Existing VMT per capita may be measured as regional VMT per capita or as city VMT per capita. Proposed development referencing a threshold based on city VMT per capita (rather than regional VMT per capita) should not cumulatively exceed the number of units specified in the SCS for that city, and should be consistent with the SCS.

Residential development that would generate vehicle travel that is 15 or more percent below the existing residential VMT per capita, measured against the region or city, may indicate a less-than-significant transportation impact. In MPO areas, development measured against city VMT per capita (rather than regional VMT per capita) should not cumulatively exceed the population or number of units specified in the SCS for that city because greater-than-planned amounts of development in areas above the region-based threshold would undermine the VMT containment needed to achieve regional targets under SB 375.

For residential projects in unincorporated county areas, the local agency can compare a residential project's VMT to (1) the region's VMT per capita, or (2) the aggregate population-weighted VMT per capita of all cities in the region. In MPO areas, development in unincorporated areas measured against aggregate city VMT per capita (rather than regional VMT per capita) should not cumulatively exceed the population or number of units specified in the SCS for that city because greater-than-planned amounts of development in areas above the regional threshold would undermine achievement of regional targets under SB 375.

[27] Chapple et al. (2017) *Developing a New Methodology for Analyzing Potential Displacement*, available at https://www.arb.ca.gov/research/apr/past/13-310.pdf.
[28] CAPCOA (2010) *Quantifying Greenhouse Gas Mitigation Measures*, pp. 176-178, available at http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

These thresholds can be applied to either household (i.e., tour-based) VMT or home-based (i.e., trip-based) VMT assessments.[29] It is critical, however, that the agency be consistent in its VMT measurement approach throughout the analysis to maintain an "apples-to-apples" comparison. For example, if the agency uses a home-based VMT for the threshold, it should also be use home-based VMT for calculating project VMT and VMT reduction due to mitigation measures.

Recommended threshold for office projects: A proposed project exceeding a level of 15 percent below existing regional VMT per employee may indicate a significant transportation impact.

Office projects that would generate vehicle travel exceeding 15 percent below existing VMT per employee for the region may indicate a significant transportation impact. In cases where the region is substantially larger than the geography over which most workers would be expected to live, it might be appropriate to refer to a smaller geography, such as the county, that includes the area over which nearly all workers would be expected to live.

Office VMT screening maps can be developed using tour-based data, considering either total employee VMT or employee work tour VMT. Similarly, tour-based analysis of office project VMT could consider either total employee VMT or employee work tour VMT. Where tour-based information is unavailable for threshold determination, project assessment, or assessment of mitigation, home-based work trip VMT should be used throughout all steps of the analysis to maintain an "apples-to-apples" comparison.

Recommended threshold for retail projects: A net increase in total VMT may indicate a significant transportation impact.

Because new retail development typically redistributes shopping trips rather than creating new trips,[30] estimating the total change in VMT (i.e., the difference in total VMT in the area affected with and without the project) is the best way to analyze a retail project's transportation impacts.

By adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than-significant transportation impact. Regional-serving retail development, on the other hand, which can lead to substitution of longer trips for shorter ones, may tend to have a significant impact. Where such development decreases VMT, lead agencies should consider the impact to be less-than-significant.

Many cities and counties define local-serving and regional-serving retail in their zoning codes. Lead agencies may refer to those local definitions when available, but should also consider any project-

[29] See Appendix 1 for a description of these approaches.
[30] Lovejoy, et al. (2013) *Measuring the impacts of local land-use policies on vehicle miles of travel: The case of the first big-box store in Davis, California, The Journal of Transport and Land Use*.

specific information, such as market studies or economic impacts analyses that might bear on customers' travel behavior. Because lead agencies will best understand their own communities and the likely travel behaviors of future project users, they are likely in the best position to decide when a project will likely be local-serving. Generally, however, retail development including stores larger than 50,000 square feet might be considered regional-serving, and so lead agencies should undertake an analysis to determine whether the project might increase or decrease VMT.

Mixed-Use Projects

Lead agencies can evaluate each component of a mixed-use project independently and apply the significance threshold for each project type included (e.g., residential and retail). Alternatively, a lead agency may consider only the project's dominant use. In the analysis of each use, a project should take credit for internal capture. Combining different land uses and applying one threshold to those land uses may result in an inaccurate impact assessment.

Other Project Types

Of land use projects, residential, office, and retail projects tend to have the greatest influence on VMT. For that reason, OPR recommends the quantified thresholds described above for purposes of analysis and mitigation. Lead agencies, using more location-specific information, may develop their own more specific thresholds, which may include other land use types. In developing thresholds for other project types, or thresholds different from those recommended here, lead agencies should consider the purposes described in section 21099 of the Public Resources Code and regulations in the CEQA Guidelines on the development of thresholds of significance (e.g., CEQA Guidelines, § 15064.7).

Strategies and projects that decrease local VMT but increase total VMT should be avoided. Agencies should consider whether their actions encourage development in a less travel-efficient location by limiting development in travel-efficient locations.

Redevelopment Projects

Where a project replaces existing VMT-generating land uses, if the replacement leads to a net overall decrease in VMT, the project would lead to a less-than-significant transportation impact. If the project leads to a net overall increase in VMT, then the thresholds described above should apply.

As described above, a project or plan near transit which replaces affordable[31] residential units with a smaller number of moderate- or high-income residential units may increase overall VMT, because

[31] Including naturally-occurring affordable residential units.

displaced residents' VMT may increase.[32] A lead agency should analyze VMT for such a project even if it otherwise would have been presumed less than significant. The assessment should incorporate an estimate of the aggregate VMT increase experienced by displaced residents. That additional VMT should be included in the numerator of the VMT per capita assessed for the project.

If a residential or office project leads to a net increase in VMT, then the project's VMT per capita (residential) or per employee (office) should be compared to thresholds recommended above. Per capita and per employee VMT are efficiency metrics, and, as such, apply only to the existing project without regard to the VMT generated by the previously existing land use.

If the project leads to a net increase in provision of locally-serving retail, transportation impacts from the retail portion of the development should be presumed to be less than significant. If the project consists of regionally-serving retail, and increases overall VMT compared to with existing uses, then the project would lead to a significant transportation impact.

RTP/SCS Consistency (All Land Use Projects)

Section 15125, subdivision (d), of the CEQA Guidelines provides that lead agencies should analyze impacts resulting from inconsistencies with regional plans, including regional transportation plans. For this reason, if a project is inconsistent with the Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS), the lead agency should evaluate whether that inconsistency indicates a significant impact on transportation. For example, a development may be inconsistent with an RTP/SCS if the development is outside the footprint of development or within an area specified as open space as shown in the SCS.

3. Recommendations Regarding Land Use Plans

As with projects, agencies should analyze VMT outcomes of land use plans across the full area over which the plan may substantively affect travel patterns, including beyond the boundary of the plan or jurisdiction's geography. And as with projects, VMT should be counted in full rather than split between origin and destination. (Emissions inventories have sometimes spit cross-boundary trips in order to sum to a regional total, but CEQA requires accounting for the full impact without truncation or discounting). Analysis of specific plans may employ the same thresholds described above for projects. A general plan, area plan, or community plan may have a significant impact on transportation if proposed new residential, office, or retail land uses would in aggregate exceed the respective thresholds recommended above. Where the lead agency tiers from a general plan EIR pursuant to CEQA Guidelines sections 15152 and 15166, the lead agency generally focuses on the environmental impacts that are specific to the later project and were not analyzed as significant impacts in the prior EIR. (Pub. Resources Code, § 21068.5; Guidelines, § 15152, subd. (a).) Thus, in analyzing the later project, the lead agency

[32] Chapple et al. (2017) *Developing a New Methodology for Analyzing Potential Displacement,* Chapter 4, pp. 159-160, available at https://www.arb.ca.gov/research/apr/past/13-310.pdf.

would focus on the VMT impacts that were not adequately addressed in the prior EIR. In the tiered document, the lead agency should continue to apply the thresholds recommended above.

Thresholds for plans in non-MPO areas may be determined on a case-by-case basis.

4. Other Considerations

Rural Projects Outside of MPOs

In rural areas of non-MPO counties (i.e., areas not near established or incorporated cities or towns), fewer options may be available for reducing VMT, and significance thresholds may be best determined on a case-by-case basis. Note, however, that clustered small towns and small town main streets may have substantial VMT benefits compared to isolated rural development, similar to the transit oriented development described above.

Impacts to Transit

Because criteria for determining the significance of transportation impacts must promote "the development of multimodal transportation networks" pursuant to Public Resources Code section 21099, subd. (b)(1), lead agencies should consider project impacts to transit systems and bicycle and pedestrian networks. For example, a project that blocks access to a transit stop or blocks a transit route itself may interfere with transit functions. Lead agencies should consult with transit agencies as early as possible in the development process, particularly for projects that are located within one half mile of transit stops.

When evaluating impacts to multimodal transportation networks, lead agencies generally should not treat the addition of new transit users as an adverse impact. An infill development may add riders to transit systems and the additional boarding and alighting may slow transit vehicles, but it also adds destinations, improving proximity and accessibility. Such development also improves regional vehicle flow by adding less vehicle travel onto the regional network.

Increased demand throughout a region may, however, cause a cumulative impact by requiring new or additional transit infrastructure. Such impacts may be adequately addressed through a fee program that fairly allocates the cost of improvements not just to projects that happen to locate near transit, but rather across a region to all projects that impose burdens on the entire transportation system, since transit can broadly improve the function of the transportation system.

F. Considering the Effects of Transportation Projects on Vehicle Travel

Many transportation projects change travel patterns. A transportation project which leads to additional vehicle travel on the roadway network, commonly referred to as "induced vehicle travel," would need to quantify the amount of additional vehicle travel in order to assess air quality impacts, greenhouse gas emissions impacts, energy impacts, and noise impacts. Transportation projects also are required to

examine induced growth impacts under CEQA. (See generally, Pub. Resources Code, §§ 21065 [defining "project" under CEQA as an activity as causing either a direct or reasonably foreseeable indirect physical change], 21065.3 [defining "project-specific effect" to mean all direct or indirect environmental effects], 21100, subd. (b) [required contents of an EIR].) For any project that increases vehicle travel, explicit assessment and quantitative reporting of the amount of additional vehicle travel should not be omitted from the document; such information may be useful and necessary for a full understanding of a project's environmental impacts. (See Pub. Resources Code, §§ 21000, 21001, 21001.1, 21002, 21002.1 [discussing the policies of CEQA].) A lead agency that uses the VMT metric to assess the transportation impacts of a transportation project may simply report that change in VMT as the impact. When the lead agency uses another metric to analyze the transportation impacts of a roadway project, changes in amount of vehicle travel added to the roadway network should still be analyzed and reported.[33]

While CEQA does not require perfection, it is important to make a reasonably accurate estimate of transportation projects' effects on vehicle travel in order to make reasonably accurate estimates of GHG emissions, air quality emissions, energy impacts, and noise impacts. (See, e.g., *California Clean Energy Com. v. City of Woodland* (2014) 225 Cal.App.4th 173, 210 [EIR failed to consider project's transportation energy impacts]; *Ukiah Citizens for Safety First v. City of Ukiah* (2016) 248 Cal.App.4th 256, 266.) Appendix 2 describes in detail the causes of induced vehicle travel, the robust empirical evidence of induced vehicle travel, and how models and research can be used in conjunction to quantitatively assess induced vehicle travel with reasonable accuracy.

If a project would likely lead to a measurable and substantial increase in vehicle travel, the lead agency should conduct an analysis assessing the amount of vehicle travel the project will induce. Project types that would likely lead to a measurable and substantial increase in vehicle travel generally include:

- Addition of through lanes on existing or new highways, including general purpose lanes, HOV lanes, peak period lanes, auxiliary lanes, or lanes through grade-separated interchanges

Projects that would not likely lead to a substantial or measurable increase in vehicle travel, and therefore generally should not require an induced travel analysis, include:

- Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets (e.g., highways; roadways; bridges; culverts; Transportation Management System field elements such as cameras, message signs, detection, or signals; tunnels; transit systems; and assets that serve bicycle and pedestrian facilities) and that do not add additional motor vehicle capacity
- Roadside safety devices or hardware installation such as median barriers and guardrails

[33] See, e.g., California Department of Transportation (2006) *Guidance for Preparers of Growth-related, Indirect Impact Analyses*, available at http://www.dot.ca.gov/ser/Growth-related_IndirectImpactAnalysis/GRI_guidance06May_files/gri_guidance.pdf.

- Roadway shoulder enhancements to provide “breakdown space,” dedicated space for use only by transit vehicles, to provide bicycle access, or to otherwise improve safety, but which will not be used as automobile vehicle travel lanes
- Addition of an auxiliary lane of less than one mile in length designed to improve roadway safety
- Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pockets, two-way left turn lanes, or emergency breakdown lanes that are not utilized as through lanes
- Addition of roadway capacity on local or collector streets provided the project also substantially improves conditions for pedestrians, cyclists, and, if applicable, transit
- Conversion of existing general purpose lanes (including ramps) to managed lanes or transit lanes, or changing lane management in a manner that would not substantially increase vehicle travel
- Addition of a new lane that is permanently restricted to use only by transit vehicles
- Reduction in number of through lanes
- Grade separation to separate vehicles from rail, transit, pedestrians or bicycles, or to replace a lane in order to separate preferential vehicles (e.g., HOV, HOT, or trucks) from general vehicles
- Installation, removal, or reconfiguration of traffic control devices, including Transit Signal Priority (TSP) features
- Installation of traffic metering systems, detection systems, cameras, changeable message signs and other electronics designed to optimize vehicle, bicycle, or pedestrian flow
- Timing of signals to optimize vehicle, bicycle, or pedestrian flow
- Installation of roundabouts or traffic circles
- Installation or reconfiguration of traffic calming devices
- Adoption of or increase in tolls
- Addition of tolled lanes, where tolls are sufficient to mitigate VMT increase
- Initiation of new transit service
- Conversion of streets from one-way to two-way operation with no net increase in number of traffic lanes
- Removal or relocation of off-street or on-street parking spaces
- Adoption or modification of on-street parking or loading restrictions (including meters, time limits, accessible spaces, and preferential/reserved parking permit programs)
- Addition of traffic wayfinding signage
- Rehabilitation and maintenance projects that do not add motor vehicle capacity
- Addition of new or enhanced bike or pedestrian facilities on existing streets/highways or within existing public rights-of-way
- Addition of Class I bike paths, trails, multi-use paths, or other off-road facilities that serve non-motorized travel
- Installation of publicly available alternative fuel/charging infrastructure
- Addition of passing lanes, truck climbing lanes, or truck brake-check lanes in rural areas that do not increase overall vehicle capacity along the corridor

1. Recommended Significance Threshold for Transportation Projects

As noted in Section 15064.3 of the CEQA Guidelines, lead agencies for roadway capacity projects have discretion, consistent with CEQA and planning requirements, to choose which metric to use to evaluate transportation impacts. This section recommends considerations for evaluating impacts using vehicle miles traveled. Lead agencies have discretion to choose a threshold of significance for transportation projects as they do for other types of projects. As explained above, Public Resources Code section 21099, subdivision (b)(1), provides that criteria for determining the significance of transportation impacts must promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. (*Id.*; see generally, adopted CEQA Guidelines, § 15064.3, subd. (b) [Criteria for Analyzing Transportation Impacts].) With those goals in mind, OPR prepared and the Agency adopted an appropriate transportation metric.

Whether adopting a threshold of significance, or evaluating transportation impacts on a case-by-case basis, a lead agency should ensure that the analysis addresses:

- Direct, indirect and cumulative effects of the transportation project (CEQA Guidelines, § 15064, subds. (d), (h))
- Near-term and long-term effects of the transportation project (CEQA Guidelines, §§ 15063, subd. (a)(1), 15126.2, subd. (a))
- The transportation project's consistency with state greenhouse gas reduction goals (Pub. Resources Code, § 21099)[34]
- The impact of the transportation project on the development of multimodal transportation networks (Pub. Resources Code, § 21099)
- The impact of the transportation project on the development of a diversity of land uses (Pub. Resources Code, § 21099)

The CARB Scoping Plan and the CARB Mobile Source Strategy delineate VMT levels required to achieve legally mandated GHG emissions reduction targets. A lead agency should develop a project-level threshold based on those VMT levels, and may apply the following approach:

1. Propose a fair-share allocation of those budgets to their jurisdiction (e.g., by population);

[34] The California Air Resources Board has ascertained the limits of VMT growth compatible with California containing greenhouse gas emissions to levels research shows would allow for climate stabilization. (See *The 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target* (p. 78, p. 101); *Mobile Source Strategy* (p. 37).) CARB's *Updated Final Staff Report on Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets* illustrates that the current Regional Transportation Plans and Sustainable Communities Strategies will fall short of achieving the necessary on-road transportation-related GHG emissions reductions called for in the 2017 Scoping Plan (Figure 3, p. 35). Accordingly, OPR recommends not basing GHG emissions or transportation impact analysis for a transportation project solely on consistency with an RTP/SCS.

2. Determine the amount of VMT growth likely to result from background population growth, and subtract that from their "budget";
3. Allocate their jurisdiction's share between their various VMT-increasing transportation projects, using whatever criteria the lead agency prefers.

2. Estimating VMT Impacts from Transportation Projects

CEQA requires analysis of a project's potential growth-inducing impacts. (Pub. Resources Code, § 21100, subd. (b)(5); CEQA Guidelines, § 15126.2, subd. (d).) Many agencies are familiar with the analysis of growth inducing impacts associated with water, sewer, and other infrastructure. This technical advisory addresses growth that may be expected from roadway expansion projects.

Because a roadway expansion project can induce substantial VMT, incorporating quantitative estimates of induced VMT is critical to calculating both transportation and other impacts of these projects. Induced travel also has the potential to reduce or eliminate congestion relief benefits. An accurate estimate of induced travel is needed to accurately weigh costs and benefits of a highway capacity expansion project.

The effect of a transportation project on vehicle travel should be estimated using the "change in total VMT" method described in *Appendix 1*. This means that an assessment of total VMT without the project and an assessment with the project should be made; the difference between the two is the amount of VMT attributable to the project. The assessment should cover the full area in which driving patterns are expected to change. As with other types of projects, the VMT estimation should not be truncated at a modeling or jurisdictional boundary for convenience of analysis when travel behavior is substantially affected beyond that boundary.

Transit and Active Transportation Projects

Transit and active transportation projects generally reduce VMT and therefore are presumed to cause a less-than-significant impact on transportation. This presumption may apply to all passenger rail projects, bus and bus rapid transit projects, and bicycle and pedestrian infrastructure projects. Streamlining transit and active transportation projects aligns with each of the three statutory goals contained in SB 743 by reducing GHG emissions, increasing multimodal transportation networks, and facilitating mixed use development.

Roadway Projects

Reducing roadway capacity (for example, by removing or repurposing motor vehicle travel lanes) will generally reduce VMT and therefore is presumed to cause a less-than-significant impact on transportation. Generally, no transportation analysis is needed for such projects.

Building new roadways, adding roadway capacity in congested areas, or adding roadway capacity to areas where congestion is expected in the future, typically induces additional vehicle travel. For the types of projects previously indicated as likely to lead to additional vehicle travel, an estimate should be made of the change in vehicle travel resulting from the project.

For projects that increase roadway capacity, lead agencies can evaluate induced travel quantitatively by applying the results of existing studies that examine the magnitude of the increase of VMT resulting from a given increase in lane miles. These studies estimate the percent change in VMT for every percent change in miles to the roadway system (i.e., "elasticity").[35] Given that lead agencies have discretion in choosing their methodology, and the studies on induced travel reveal a range of elasticities, lead agencies may appropriately apply professional judgment in studying the transportation effects of a particular project. The most recent major study, estimates an elasticity of 1.0, meaning that every percent change in lane miles results in a one percent increase in VMT.[36]

To estimate VMT impacts from roadway expansion projects:

1. Determine the total lane-miles over an area that fully captures travel behavior changes resulting from the project (generally the region, but for projects affecting interregional travel look at all affected regions).
2. Determine the percent change in total lane miles that will result from the project.
3. Determine the total existing VMT over that same area.
4. Multiply the percent increase in lane miles by the existing VMT, and then multiply that by the elasticity from the induced travel literature:

[% increase in lane miles] x [existing VMT] x [elasticity] = [VMT resulting from the project]

A National Center for Sustainable Transportation tool can be used to apply this method: https://ncst.ucdavis.edu/research/tools

This method would not be suitable for rural (non-MPO) locations in the state which are neither congested nor projected to become congested. It also may not be suitable for a new road that provides new connectivity across a barrier (e.g., a bridge across a river) if it would be expected to substantially

[35] See U.C. Davis, Institute for Transportation Studies (Oct. 2015) *Increasing Highway Capacity Unlikely to Relieve Traffic Congestion*; Boarnet and Handy (Sept. 2014) *Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions*, California Air Resources Board Policy Brief, available at https://www.arb.ca.gov/cc/sb375/policies/hwycapacity/highway_capacity_brief.pdf.
[36] See Duranton and Turner (2011) *The Fundamental Law of Road Congestion: Evidence from US cities*, available at http://www.nber.org/papers/w15376.

shorten existing trips. If it is likely to be substantial, the trips-shortening effect should be examined explicitly.

The effects of roadway capacity on vehicle travel can also be applied at a programmatic level. For example, in a regional planning process the lead agency can use that program-level analysis to streamline later project-level analysis. (See CEQA Guidelines, § 15168.) A program-level analysis of VMT should include effects of the program on land use patterns, and the VMT that results from those land use effects. In order for a program-level document to adequately analyze potential induced demand from a project or program of roadway capacity expansion, lead agencies cannot assume a fixed land use pattern (i.e., a land use pattern that does not vary in response to the provision of roadway capacity). A proper analysis should account for land use investment and development pattern changes that react in a reasonable manner to changes in accessibility created by transportation infrastructure investments (whether at the project or program level).

Mitigation and Alternatives

Induced VMT has the potential to reduce or eliminate congestion relief benefits, increase VMT, and increase other environmental impacts that result from vehicle travel.[37] If those effects are significant, the lead agency will need to consider mitigation or alternatives. In the context of increased travel that is induced by capacity increases, appropriate mitigation and alternatives that a lead agency might consider include the following:

- Tolling new lanes to encourage carpools and fund transit improvements
- Converting existing general purpose lanes to HOV or HOT lanes
- Implementing or funding off-site travel demand management
- Implementing Intelligent Transportation Systems (ITS) strategies to improve passenger throughput on existing lanes

Tolling and other management strategies can have the additional benefit of preventing congestion and maintaining free-flow conditions, conferring substantial benefits to road users as discussed above.

G. Analyzing Other Impacts Related to Transportation

While requiring a change in the methodology of assessing transportation impacts, Public Resources Code section 21099 notes that this change "does not relieve a public agency of the requirement to analyze a project's potentially significant transportation impacts related to air quality, noise, safety, or any other impact associated with transportation." OPR expects that lead agencies will continue to

[37] See National Center for Sustainable Transportation (Oct. 2015) *Increasing Highway Capacity Unlikely to Relieve Traffic Congestion*, available at http://www.dot.ca.gov/newtech/researchreports/reports/2015/10-12-2015-NCST_Brief_InducedTravel_CS6_v3.pdf; see Duranton and Turner (2011) *The Fundamental Law of Road Congestion: Evidence from US cities*, available at http://www.nber.org/papers/w15376.

address mobile source emissions in the air quality and noise sections of an environmental document and the corresponding studies that support the analysis in those sections. Lead agencies should continue to address environmental impacts of a proposed project pursuant to CEQA's requirements, using a format that is appropriate for their particular project.

Because safety concerns result from many different factors, they are best addressed at a programmatic level (i.e., in a general plan or regional transportation plan) in cooperation with local governments, metropolitan planning organizations, and, where the state highway system is involved, the California Department of Transportation. In most cases, such an analysis would not be appropriate on a project-by-project basis. Increases in traffic volumes at a particular location resulting from a project typically cannot be estimated with sufficient accuracy or precision to provide useful information for an analysis of safety concerns. Moreover, an array of factors affect travel demand (e.g., strength of the local economy, price of gasoline), causing substantial additional uncertainty. Appendix B of OPR's General Plan Guidelines summarizes research which could be used to guide a programmatic analysis under CEQA. Lead agencies should note that automobile congestion or delay does not constitute a significant environmental impact (Pub. Resources Code, §21099(b)(2)), and safety should not be used as a proxy for road capacity.

H. VMT Mitigation and Alternatives

When a lead agency identifies a significant impact, it must identify feasible mitigation measures that could avoid or substantially reduce that impact. (Pub. Resources Code, § 21002.1, subd. (a).) Additionally, CEQA requires that an environmental impact report identify feasible alternatives that could avoid or substantially reduce a project's significant environmental impacts.

Indeed, the California Court of Appeal recently held that a long-term regional transportation plan was deficient for failing to discuss an alternative which could significantly reduce total vehicle miles traveled. In *Cleveland National Forest Foundation v. San Diego Association of Governments, et al.* (2017) 17 Cal.App.5th 413, the court found that omission "inexplicable" given the lead agency's "acknowledgment in its Climate Action Strategy that the state's efforts to reduce greenhouse gas emissions from on-road transportation will not succeed if the amount of driving, or vehicle miles traveled, is not significantly reduced." (*Cleveland National Forest Foundation*, *supra*, 17 Cal.App.5th at p. 436.) Additionally, the court noted that the project alternatives focused primarily on congestion relief even though "the [regional] transportation plan is a long-term and congestion relief is not necessarily an effective long-term strategy." (*Id.* at p. 437.) The court concluded its discussion of the alternatives analysis by stating: "Given the acknowledged long-term drawbacks of congestion relief alternatives, there is not substantial evidence to support the EIR's exclusion of an alternative focused primarily on significantly reducing vehicle trips." (*Ibid*.)

Several examples of potential mitigation measures and alternatives to reduce VMT are described below. However, the selection of particular mitigation measures and alternatives are left to the discretion of

the lead agency, and mitigation measures may vary, depending on the proposed project and significant impacts, if any. Further, OPR expects that agencies will continue to innovate and find new ways to reduce vehicular travel.

Potential measures to reduce vehicle miles traveled include, but are not limited to:

- Improve or increase access to transit.
- Increase access to common goods and services, such as groceries, schools, and daycare.
- Incorporate affordable housing into the project.
- Incorporate neighborhood electric vehicle network.
- Orient the project toward transit, bicycle and pedestrian facilities.
- Improve pedestrian or bicycle networks, or transit service.
- Provide traffic calming.
- Provide bicycle parking.
- Limit or eliminate parking supply.
- Unbundle parking costs.
- Provide parking cash-out programs.
- Implement roadway pricing.
- Implement or provide access to a commute reduction program.
- Provide car-sharing, bike sharing, and ride-sharing programs.
- Provide transit passes.
- Shifting single occupancy vehicle trips to carpooling or vanpooling, for example providing ride-matching services.
- Providing telework options.
- Providing incentives or subsidies that increase the use of modes other than single-occupancy vehicle.
- Providing on-site amenities at places of work, such as priority parking for carpools and vanpools, secure bike parking, and showers and locker rooms.
- Providing employee transportation coordinators at employment sites.
- Providing a guaranteed ride home service to users of non-auto modes.

Notably, because VMT is largely a regional impact, regional VMT-reduction programs may be an appropriate form of mitigation. In lieu fees have been found to be valid mitigation where there is both a commitment to pay fees and evidence that mitigation will actually occur. (*Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 140-141; *Gentry v. City of Murrieta* (1995) 36 Cal.App.4th 1359; *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 727–728.) Fee programs are particularly useful to address cumulative impacts. (CEQA Guidelines, § 15130, subd. (a)(3) [a "project's incremental contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact"].) The mitigation program must undergo CEQA evaluation, either on the program as a whole, or the in-lieu fees or other mitigation must be evaluated

on a project-specific basis. (*California Native Plant Society v. County of El Dorado* (2009) 170 Cal.App.4th 1026.) That CEQA evaluation could be part of a larger program, such as a regional transportation plan, analyzed in a Program EIR. (CEQA Guidelines, § 15168.)

Examples of project alternatives that may reduce vehicle miles traveled include, but are not limited to:

- Locate the project in an area of the region that already exhibits low VMT.
- Locate the project near transit.
- Increase project density.
- Increase the mix of uses within the project or within the project's surroundings.
- Increase connectivity and/or intersection density on the project site.
- Deploy management strategies (e.g., pricing, vehicle occupancy requirements) on roadways or roadway lanes.

Appendix 1. Considerations About Which VMT to Count

Consistent with the obligation to make a good faith effort to disclose the environmental consequences of a project, lead agencies have discretion to choose the most appropriate methodology to evaluate project impacts.[38] A lead agency can evaluate a project's effect on VMT in numerous ways. The purpose of this document is to provide technical considerations in determining which methodology may be most useful for various project types.

Background on Estimating Vehicle Miles Traveled

Before discussing specific methodological recommendations, this section provides a brief overview of modeling and counting VMT, including some key terminology.

Here is an illustrative example of some methods of estimating vehicle miles traveled. Consider the following hypothetical travel day (all by automobile):

1. Residence to Coffee Shop
2. Coffee Shop to Work
3. Work to Sandwich Shop
4. Sandwich Shop to Work
5. Work to Residence
6. Residence to Store
7. Store to Residence

Trip-based assessment of a project's effect on travel behavior counts VMT from individual trips to and from the project. It is the most basic, and traditionally the most common, method of counting VMT. A trip-based VMT assessment of the residence in the above example would consider segments 1, 5, 6 and 7. For residential projects, the sum of home-based trips is called *home-based* VMT.

A *tour-based* assessment counts the entire home-back-to-home tour that includes the project. A tour-based VMT assessment of the residence in the above example would consider segments 1, 2, 3, 4, and 5 in one tour, and 6 and 7 in a second tour. A tour-based assessment of the workplace would include segments 1, 2, 3, 4, and 5. Together, all tours comprise *household* VMT.

[38] The California Supreme Court has explained that when an agency has prepared an environmental impact report:

> [T]he issue is not whether the [lead agency's] studies are irrefutable or whether they could have been better. The relevant issue is only whether the studies are sufficiently credible to be considered as part of the total evidence that supports the [lead agency's] finding[.]

(*Laurel Heights Improvement Assn. v. Regents of the University of California* (1988) 47 Cal.3d 376, 409; see also *Eureka Citizens for Responsible Gov't v. City of Eureka* (2007) 147 Cal.App.4th 357, 372.)

Both trip- and tour-based assessments can be used as measures of transportation efficiency, using denominators such as per capita, per employee, or per person-trip.

Trip- and Tour-based Assessment of VMT

As illustrated above, a tour-based assessment of VMT is a more complete characterization of a project's effect on VMT. In many cases, a project affects travel behavior beyond the first destination. The location and characteristics of the home and workplace will often be the main drivers of VMT. For example, a residential or office development located near high quality transit will likely lead to some commute trips utilizing transit, affecting mode choice on the rest of the tour.

Characteristics of an office project can also affect an employee's VMT beyond the work tour. For example, a workplace located at the urban periphery, far from transit, can require an employee to own a car, which in turn affects the entirety of an employee's travel behavior and VMT. For this reason, when estimating the effect of an office development on VMT, it may be appropriate to consider total employee VMT if data and tools, such as tour-based models, are available. This is consistent with CEQA's requirement to evaluate both direct and *indirect* effects of a project. (See CEQA Guidelines, § 15064, subd. (d)(2).)

Assessing Change in Total VMT

A third method, estimating the *change in total VMT* with and without the project, can evaluate whether a project is likely to divert existing trips, and what the effect of those diversions will be on total VMT. This method answers the question, "What is the net effect of the project on area VMT?" As an illustration, assessing the total change in VMT for a grocery store built in a food desert that diverts trips from more distant stores could reveal a net VMT reduction. The analysis should address the full area over which the project affects travel behavior, even if the effect on travel behavior crosses political boundaries.

Using Models to Estimate VMT

Travel demand models, sketch models, spreadsheet models, research, and data can all be used to calculate and estimate VMT (see Appendix F of the preliminary discussion draft). To the extent possible, lead agencies should choose models that have sensitivity to features of the project that affect VMT. Those tools and resources can also assist in establishing thresholds of significance and estimating VMT reduction attributable to mitigation measures and project alternatives. When using models and tools for those various purposes, agencies should use comparable data and methods, in order to set up an "apples-to-apples" comparison between thresholds, VMT estimates, and VMT mitigation estimates.

Models can work together. For example, agencies can use travel demand models or survey data to estimate existing trip lengths and input those into sketch models such as CalEEMod to achieve more

accurate results. Whenever possible, agencies should input localized trip lengths into a sketch model to tailor the analysis to the project location. However, in doing so, agencies should be careful to avoid double counting if the sketch model includes other inputs or toggles that are proxies for trip length (e.g., distance to city center). Generally, if an agency changes any sketch model defaults, it should record and report those changes for transparency of analysis. Again, trip length data should come from the same source as data used to calculate thresholds to be sure of an "apples-to-apples" comparison.

Additional background information regarding travel demand models is available in the California Transportation Commission's "2010 Regional Transportation Plan Guidelines," beginning at page 35.

Appendix 2. Induced Travel: Mechanisms, Research, and Additional Assessment Approaches

Induced travel occurs where roadway capacity is expanded in an area of present or projected future congestion. The effect typically manifests over several years. Lower travel times make the modified facility more attractive to travelers, resulting in the following trip-making changes:

- **Longer trips.** The ability to travel a long distance in a shorter time increases the attractiveness of destinations that are farther away, increasing trip length and vehicle travel.
- **Changes in mode choice.** When transportation investments are devoted to reducing automobile travel time, travelers tend to shift toward automobile use from other modes, which increases vehicle travel.
- **Route changes.** Faster travel times on a route attract more drivers to that route from other routes, which can increase or decrease vehicle travel depending on whether it shortens or lengthens trips.
- **Newly generated trips.** Increasing travel speeds can induce additional trips, which increases vehicle travel. For example, an individual who previously telecommuted or purchased goods on the internet might choose to accomplish those tasks via automobile trips as a result of increased speeds.
- **Land Use Changes.** Faster travel times along a corridor lead to land development farther along that corridor; that new development generates and attracts longer trips, which increases vehicle travel. Over several years, this induced growth component of induced vehicle travel can be substantial, making it critical to include in analyses.

Each of these effects has implications for the total amount of vehicle travel. These effects operate over different time scales. For example, changes in mode choice might occur immediately, while land use changes typically take a few years or longer. CEQA requires lead agencies to analyze both short-term and long-term effects.

Evidence of Induced Vehicle Travel. A large number of peer reviewed studies[39] have demonstrated a causal link between highway capacity increases and VMT increases. Many provide quantitative estimates of the magnitude of the induced VMT phenomenon. Collectively, they provide high quality evidence of the existence and magnitude of the induced travel effect.

[39] See, e.g., Boarnet and Handy (Sept. 2014) Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions, California Air Resources Board Policy Brief, available at https://www.arb.ca.gov/cc/sb375/policies/hwycapacity/highway_capacity_brief.pdf; National Center for Sustainable Transportation (Oct. 2015) *Increasing Highway Capacity Unlikely to Relieve Traffic Congestion*, available at http://www.dot.ca.gov/research/researchreports/reports/2015/10-12-2015-NCST_Brief_InducedTravel_CS6_v3.pdf.

Most of these studies express the amount of induced vehicle travel as an "elasticity," which is a multiplier that describes the additional vehicle travel resulting from an additional lane mile of roadway capacity added. For example, an elasticity of 0.6 would signify an 0.6 percent increase in vehicle travel for every 1.0 percent increase in lane miles. Many of these studies distinguish "short run elasticity" (increase in vehicle travel in the first few years) from "long run elasticity" (increase in vehicle travel beyond the first few years). Long run elasticity is larger than short run elasticity, because as time passes, more of the components of induced vehicle travel materialize. Generally, short run elasticity can be thought of as excluding the effects of land use change, while long run elasticity includes them. Most studies find a long run elasticity between 0.6 and just over 1.0,[40] meaning that every increase in lanes miles of one percent leads to an increase in vehicle travel of 0.6 to 1.0 percent. The most recent major study finds the elasticity of vehicle travel by lanes miles added to be 1.03; in other words, each percent increase in lane miles results in a 1.03 percent increase in vehicle travel.[41] (An elasticity greater than 1.0 can occur because new lanes induce vehicle travel that spills beyond the project location.) In CEQA analysis, the long-run elasticity should be used, as it captures the full effect of the project rather than just the early-stage effect.

Quantifying Induced Vehicle Travel Using Models. Lead agencies can generally achieve the most accurate assessment of induced vehicle travel resulting from roadway capacity increasing projects by applying elasticities from the academic literature, because those estimates include vehicle travel resulting from induced land use. If a lead agency chooses to use a travel demand model, additional analysis would be needed to account for induced land use. This section describes some approaches to undertaking that additional analysis.

Proper use of a travel demand model can capture the following components of induced VMT:

- Trip length (generally increases VMT)
- Mode shift (generally shifts from other modes toward automobile use, increasing VMT)
- Route changes (can act to increase or decrease VMT)
- Newly generated trips (generally increases VMT)
    - Note that not all travel demand models have sensitivity to this factor, so an off-model estimate may be necessary if this effect could be substantial.

However, estimating long-run induced VMT also requires an estimate of the project's effects on land use. This component of the analysis is important because it has the potential to be a large component of

[40] See Boarnet and Handy (Sept. 2014) *Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions*, California Air Resources Board Policy Brief, p. 2, available at https://www.arb.ca.gov/cc/sb375/policies/hwycapacity/highway_capacity_brief.pdf.

[41] Duranton and Turner (2011) *The Fundamental Law of Road Congestion: Evidence from US cities*, available at http://www.nber.org/papers/w15376.

the overall induced travel effect. Options for estimating and incorporating the VMT effects that are caused by the subsequent land use changes include:

1. *Employ an expert panel.* An expert panel could assess changes to land use development that would likely result from the project. This assessment could then be analyzed by the travel demand model to assess effects on vehicle travel. Induced vehicle travel assessed via this approach should be verified using elasticities found in the academic literature.
2. *Adjust model results to align with the empirical research.* If the travel demand model analysis is performed without incorporating projected land use changes resulting from the project, the assessed vehicle travel should be adjusted upward to account for those land use changes. The assessed VMT after adjustment should fall within the range found in the academic literature.
3. *Employ a land use model, running it iteratively with a travel demand model.* A land use model can be used to estimate the land use effects of a roadway capacity increase, and the traffic patterns that result from the land use change can then be fed back into the travel demand model. The land use model and travel demand model can be iterated to produce an accurate result.

A project which provides new connectivity across a barrier, such as a new bridge across a river, may provide a shortened path between existing origins and destinations, thereby shortening existing trips. In rare cases, this trip-shortening effect might be substantial enough to reduce the amount of vehicle travel resulting from the project below the range found in the elasticities in the academic literature, or even lead a net reduction in vehicle travel overall. In such cases, the trip-shortening effect could be examined explicitly.

Whenever employing a travel demand model to assess induced vehicle travel, any limitation or known lack of sensitivity in the analysis that might cause substantial errors in the VMT estimate (for example, model insensitivity to one of the components of induced VMT described above) should be disclosed and characterized, and a description should be provided on how it could influence the analysis results. A discussion of the potential error or bias should be carried into analyses that rely on the VMT analysis, such as greenhouse gas emissions, air quality, energy, and noise.

Appendix B
Guidelines for Transportation Impact Studies in the San Diego Region



DRAFT

GUIDELINES FOR TRANSPORTATION IMPACT STUDIES IN THE SAN DIEGO REGION

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GUIDELINES FOR TRANSPORTATION IMPACT STUDIES (TIS) IN THE SAN DIEGO REGION

1.0 BACKGROUND

The original Guidelines for Traffic Impact Studies in the San Diego Region (ITE/SANTEC, 2000) have been in use for over 18 years. They were developed by a group of volunteers from the San Diego Section of the Institute of Transportation Engineers (ITE) and the San Diego Traffic Engineers Council (SANTEC). The guidelines were later incorporated into the region's Congestion Management Program (CMP) prepared by the San Diego Association of Governments (SANDAG, 2008). Although the inclusion the Congestion Management Program (CMP) increased the visibility of the guidelines for a period of time, SANDAG has since opted out of the CMP process.

The intent in preparing the guidelines was to promote consistency in the methodology for traffic impact studies used by different agencies in the San Diego region. While these guidelines were not intended to be used as a standard or a requirement, they provided a methodology for traffic impact studies that is similar to the methodology used by most agencies within the region. Some agencies in the region have "adopted" the guidelines by specifying that traffic impact studies follow the procedures recommended by the guidelines. Other agencies, including San Diego County and the City of San Diego, prepared their own guidelines that included some common elements with the regional guidelines.

The need to develop a revised set of regional transportation impact study guidelines is primarily related to the passage of Senate Bill 743 (SB 743) in the fall of 2013. This legislation led to a change in the way that transportation impacts are measured under the California Environmental Quality Act (CEQA). Starting on July 1, 2020, automobile delay and level of service (LOS) may no longer be used as the performance measure to determine the transportation impacts of land development projects under CEQA. Instead, vehicle miles traveled (VMT) will become a required metric. This requirement does not modify the discretion lead agencies have to analyze impacts to other components of the transportation system such as walking, bicycling, transit, and safety. SB 743 also applies to transportation projects, although agencies were given flexibility in the determination of the performance measure for these types of projects.

The intent of SB 743 is to bring CEQA transportation analyses into closer alignment with other statewide policies regarding greenhouse gases, complete streets, and smart growth. Using VMT as a performance measure instead of LOS is intended to discourage suburban sprawl, reduce greenhouse gas emissions, encourage the development of smart growth, complete streets, and multimodal transportation networks.

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2.0 PURPOSE OF GUIDELINES

The guidelines described in this report were prepared to provide methodologies for transportation engineers and planners to conduct CEQA transportation analyses for land development and transportation projects in compliance with SB 743. Lead agencies may opt-in to using VMT at any time, but will be required to use it for analysis of transportation impacts of land development projects starting July 1, 2020. In addition, methodologies are provided to evaluate automobile delay and LOS outside of the CEQA process. Although no longer incorporated in CEQA (starting July 2020), automobile delay and LOS continue to be of interest to transportation engineers and planners who plan, design, operate, and maintain the roadway system. In addition, delay experienced due to traffic congestion is a concern to drivers and passengers of vehicles using the roadway system.

Given the need to prepare VMT-based CEQA transportation impact analyses to satisfy the requirements of SB 743 as well as the need to evaluate the performance of the roadway system based on delay and LOS, these guidelines are divided into separate parts. Part I is focused on CEQA transportation impact analyses while Part II is focused on the more traditional LOS-based transportation analyses, called local transportation analysis for the purpose of these guidelines. Local transportation analysis includes evaluation of any multimodal transportation improvements (transit, bicycle, pedestrian) that are recommended to support a land development project but may or may not be required as mitigation measures for a project's significant VMT impacts. Background information for each is provided below with more detail included in the sections that follow.

CEQA TRANSPORTATION IMPACT ANALYSIS

The SB 743 legislation specified that the Governor's Office of Planning and Research (OPR) prepare guidelines for the implementation of SB 743. During the period from the passage of SB 743 in 2013 to the fall of 2017, OPR prepared various sets of guidelines and sought public comments from stakeholders. This resulted in two documents dated November 2017 that were sent to the California Natural Resources Agency for adoption into CEQA:

- CEQA Guidelines Revisions: Revisions to the CEQA Guidelines are made through a formal process conducted by the Natural Resources Agency. Changes can only be made through a future CEQA update process.

- Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory): The technical advisory provides recommendations for the preparation of transportation impact analyses under SB 743. It is not formally included in CEQA and can be revised by OPR at any time without going through a formal process. Updated versions of the technical advisory are expected to be issued by OPR as new information becomes available and as California agencies gain experience in applying SB 743 to actual projects. As of the time of preparation of these transportation impact study guidelines, two updates to the November 2017 technical advisory had been published, and the current version is dated December 2018.

In addition to the differences described above, the CEQA Guidelines revisions and the technical advisory also differ in the extent to which they must be followed by local agencies. The CEQA Guidelines revisions

are rules that must be followed in order to prepare an adequate CEQA document. In contrast, the technical advisory provides statewide guidance based on evidence collected by OPR that can be refined or modified by local agencies with appropriate justification and substantial evidence. (Refer to CEQA Guidelines Section 15384 for a definition of substantial evidence.) As an example, the CEQA Guidelines revisions specify that a land development project's effect on automobile delay does not cause a significant environmental impact. The use of VMT is suggested as a performance metric, but there is no indication of what level of VMT increase would cause a significant environmental impact. The technical advisory suggests various thresholds for the significance of VMT impacts but does not require the use of a particular threshold. Therefore, lead agencies would be prohibited from using automobile delay to determine significant transportation impacts and would be required to use VMT instead. Lead agencies have discretion to select their preferred significance thresholds and could choose to use the thresholds suggested in the technical advisory or develop alternative thresholds. Either decision should be supported by substantial evidence that considers the legislative intent objectives of SB 743 and the specific direction the statue provides regarding setting thresholds (per the excerpts below):

> SB 743 Statute - Legislative Intent
> *More appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions.*

> SB 743 Statute – Section 21099(b)(1)
> *Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.*

Regardless of the changes described above, SB 743 is clear in its intent that CEQA documents continue to address noise, air quality, and safety (per the excerpt below):

> SB 743 Statute – Section 21099(b)(3)
> *This subdivision does not relieve a public agency of the requirement to analyze a project's potentially significant transportation impacts related to air quality, noise, safety, or any other impact associated with transportation. The methodology established by these guidelines shall not create a presumption that a project will not result in significant impacts related to air quality, noise, safety, or any other impact associated with transportation.*

Although SB 743 will require the use of VMT analysis, it does not change expectations for evaluating potential impacts to other components of the transportation system as noted above. A complete environmental review will generally consider how projects effect VMT in addition to effects on walking, bicycling, using transit, and safety when traveling.

The CEQA transportation impact analysis described in these transportation impact study guidelines is based on the technical advisory prepared by OPR, but refinements and clarifications have been added to reflect local conditions. For any subsequent revisions of the SB 743 technical advisory prepared by OPR, it would need to be determined whether the new information would suggest a change in the methodologies for conducting CEQA transportation impact studies in the San Diego region.

LOCAL TRANSPORTATION ANALYSIS

As stated above, localized traffic congestion remains a concern to transportation engineers and planners as well as the traveling public. It is recommended that consideration be given to preparation of a local transportation analysis for all land development and transportation projects that evaluates a project's access and circulation within and nearby the project site. The local transportation analysis would provide analysis of roadway conditions where there is the potential that substantial worsening of traffic congestion would result due to implementation of the project. In addition, it would analyze the need for multimodal improvements in cases where there is the potential for the project to cause a substantial worsening of conditions for multimodal travel. Since any increases in traffic congestion or vehicular delay would not constitute a significant environmental impact, the local transportation analysis could be included in the project's CEQA document for information only or it could be provided in a separate document. The purposes of the local transportation analysis may include, but is not limited to the following:

- Recommendations for any roadway improvements that should be built/implemented by the project (or should be built/implemented by the project in coordination with other nearby land development projects) based on the project's expected effect on vehicular delay and LOS.

- Recommendations for any multimodal transportation improvements (transit, bicycle, pedestrian) that should be built/implemented by the project (or should be built/implemented by the project in coordination with other nearby land development projects). Recommended multimodal transportation improvements may be required as mitigation measures for transportation impacts related to VMT increases or they may be recommended for other reasons.

- Transportation analysis needed to determine the appropriate level of fees for multimodal transportation improvements if the local jurisdiction has a fee program in place.

- Documentation of the project's expected effect on vehicular delay and level of service in the nearby transportation system.

The roadway analysis methodologies recommended for conducting local transportation analysis, as detailed in Part II of these guidelines are based on the previous regional traffic impact study guidelines, with changes to reflect evolution in the practice that has occurred Users of these guidelines should note that transportation analysis advances occur each year as documented through key conferences such as the Transportation Research Board (TRB) Annual Meeting. Further, new data vendors and new mobility options continue to evolve. As such, the recommended methodologies in this document may require on-going updates and refinements. The recommended methodologies for multimodal transportation analysis generally reflect new procedures that were not included in the previous guidelines.

The intent of these guidelines is that agencies in the San Diego region be encouraged to implement Part I – CEQA guidelines to promote consistency in methodology and the pursuit of VMT reductions to meet regional and state goals. It is recognized that agencies may wish to make specific exceptions to these guidelines to account for local conditions. Agencies may also desire to have additional analyses conducted outside of the CEQA analyses to help inform staff and decision makers in reviewing a project. To that end, Part II – Local Transportation Analyses reflects an update to the previous regional Traffic Impact Study Guidelines.

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3.0 PROJECT COORDINATION AND STAFF CONSULTATION

TIS preparers are encouraged to discuss the project with the lead reviewing agency's staff reviewer at an early stage in the planning process. An understanding of the level of detail and the assumptions required for the analysis should be reached. While a pre-submittal conference is highly encouraged, it may not be a requirement. For straightforward studies prepared by consultants familiar with these TIS procedures, a telephone call or e-mail, followed by a verification of key assumptions, may suffice. Transportation impact studies should be prepared by a qualified transportation professional. Lead agencies should consider requiring that all transportation impact studies by prepared by or reviewed under the supervision of a licensed traffic engineer.

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PART I – CEQA TRANSPORTATION ANALYSIS

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4.0 INDIVIDUAL LAND DEVELOPMENT PROJECTS AND SPECIFIC PLANS

The recommended methodology for conducting a VMT analysis is based on guidance prepared by the California Governor's Office of Planning and Research (OPR) as provided in the published Technical Advisory on Evaluating Transportation Impacts in CEQA. At the time of writing of these guidelines, the current version of OPR's technical advisory was dated December 2018. The guidance recommended by OPR has been modified to be better suited to local conditions in the San Diego region. These modifications are noted in the details described later in this chapter.

The basic process is to compare a project's estimated VMT/capita or VMT/employee to average values on a regional, city-wide, or community basis. The target is to achieve a project VMT/employee or VMT/capita that is 85% or less of the appropriate average based on suggestions in these guidelines. Note that lead agencies have discretion for choosing a VMT metric and threshold. The selection should represent how VMT reduction is balanced against other objectives of the lead agency and be supported by substantial evidence.

The methodology for determining VMT/capita or VMT/employee is related to the project's expected daily trip generation. The process for determining appropriate methodology to be used for conducting a VMT analysis for individual land development projects and specific plans is summarized in Figure 4-1.

The remainder of this section of the guidelines is divided into individual components that describe different aspects of the methodology.

MINIMUM PROJECT SIZE

It is recommended that projects be subjected to different levels of VMT analysis, depending on the size of the project and whether the project is consistent with the local jurisdiction's General Plan or Community Plan. Projects that are consistent with the General Plan or Community Plan are also considered to be consistent with the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

The determination of minimum project size for VMT analysis described below differs from the statewide guidance provided by OPR. It is based on regional standards for transportation analyses that were documented in the Guidelines for Traffic Impact Studies in the San Diego Region (ITE/SANTEC, 2000) and have been in use for over 18 years.

The following level of VMT analysis is recommended based on project size (expressed in terms of Average Daily Trips generated by the project, also known as ADT) and zoning:

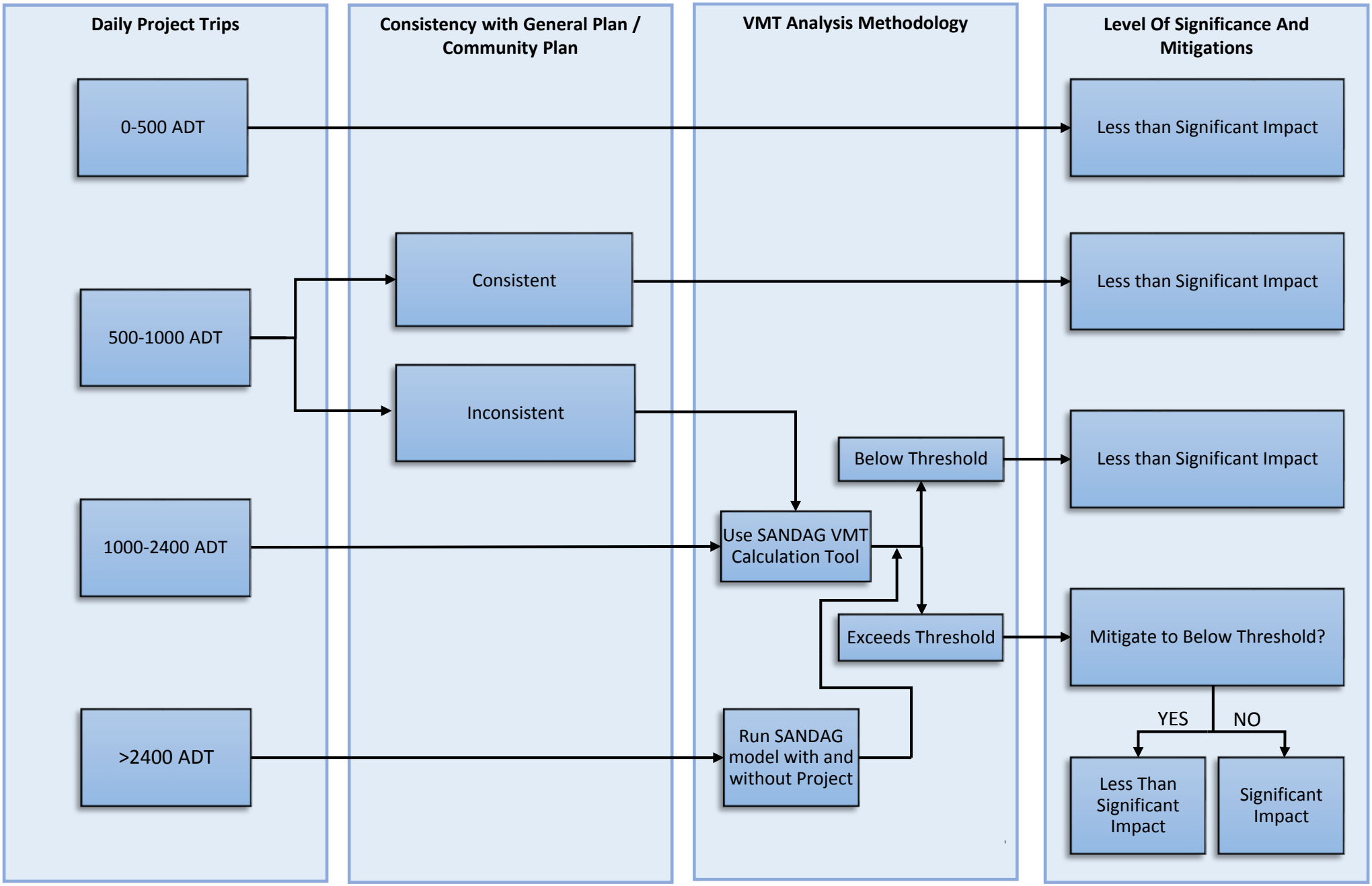
Projects Inconsistent with General Plan or Community Plan

ADT	Level of Analysis
0 – 500	VMT Analysis Not Needed/VMT Impacts Presumed Insignificant
500 and Greater	VMT Analysis Recommended

Projects Consistent with General Plan or Community Plan

ADT	Level of Analysis
0 – 1,000	VMT Analysis Not Needed/VMT Impacts Presumed Insignificant
1,000 and Greater	VMT Analysis Recommended

Figure 4-1
VMT Analysis for Individual Land Development Projects



PROJECTS LOCATED NEAR TRANSIT STATIONS

OPR's technical advisory contains the following guidance regarding projects located near transit stations:

- Proposed CEQA Guideline Section 15064.3, subdivision (b)(1), states that lead agencies generally should presume that certain projects (including residential, retail, and office projects, as well as projects that are a mix of these uses) proposed within ½ mile of an existing major transit stop or an existing stop along a high quality transit corridor will have a less-than-significant impact on VMT. This presumption would not apply, however, if project-specific or location-specific information indicates that the project will still generate significant levels of VMT.

An existing major transit stop is defined as "a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods."
For the purposes of these guidelines, the distance between the project site and the transit station is typically based on walking distance.

Under normal circumstances, a major transit stop would be considered to be applicable for this purpose if the transit stop were assumed to be in place in SANDAG's RTIP scenario (see Methodology for VMT analysis for further discussion of this scenario).

METHODOLOGY FOR VMT ANALYSIS

As mentioned above, it is recommended that VMT thresholds for SB 743 analysis will be developed by comparisons to average VMT/capita (for residential projects) or VMT/employee (for employment projects). The analysis can be conducted by comparing either the project VMT/capita or VMT/employee to both the San Diego regional average and the average for the city or community in which the project is located. If the project average is lower than either 85% of the regional average or 85% of the average for the city or community in which the project is located, the VMT impacts of the project can be presumed less than significant. It will be up to each city in the San Diego region and the County to either define its jurisdiction as a single community for the purposes of determining VMT thresholds or to subdivide its jurisdiction into smaller communities for the purpose of SB 743 analysis.

It should be noted that OPR's technical advisory includes special considerations for affordable housing and these considerations are also recommended for use in the San Diego area. Projects that include 100% affordable housing in infill locations can be presumed to have a less than significant VMT impact. Infill locations will typically have better than average access to transit and/or greater opportunities for walking and bicycling trips. The exact definition of infill locations will need to be determined based on local conditions.

The VMT methodology recommended above differs from the statewide guidance recommended by OPR in the following ways:

- OPR recommends that VMT/capita comparisons for residential projects be made both on a regional and city-wide basis. These guidelines recommend that a city may choose to do comparisons at a community level rather than at the city-wide level. This recommendation applies to all cities within San Diego County and provides the lead agencies flexibility and discretion for

selecting the threshold that is appropriate for their agency, based on their values and substantial evidence. Many communities within cities within the San Diego Region have a size and population that is comparable to a typical city on a statewide basis. The unincorporated area of San Diego County also has a governing structure in place for its communities and the choice to do VMT/capita comparisons at a community level is also recommended to be extended to the unincorporated area of the County. The Cities of Encinitas and Chula Vista are also examples of cities that have distinct communities that have been treated differently for various historical planning considerations.

- OPR recommends that VMT/employee comparisons for employment projects be conducted at a regional basis only, as compared to VMT/capita comparisons that are made both at a regional and city-wide basis. These guidelines recommend that VMT/employee comparisons be made at both the regional and at the city-wide level (or community level as described above). The San Diego Region is the third largest region in California (after the Los Angeles Area and the San Francisco Bay Area). While some employment trips are made across the region (or even outside the region), there is a large incentive to live and work within a relatively short distance, even within the same city or community, to avoid the relatively long commute distances that can be experienced by traveling across the region during peak commute hours.

- OPR recommends that the VMT/capita comparisons for projects in unincorporated county areas be based on the average of all cities within the county. These guidelines recommend that VMT/capita and VMT/employee comparisons for projects in the unincorporated area of San Diego County be made to the overall average VMT/capita and VMT/employee for the unincorporated area of the county. San Diego County is one of the largest counties in California in terms of geography and also one of the most diverse in terms of topography and climate. While the VMT/capita comparison recommended by OPR may make sense for some counties in California, the comparisons between unincorporated areas and averages of the cities makes less sense in San Diego County where there are great differences in terms of distance and other factors between rural and urban areas of the County. In addition, there is a technical reason for recommending that VMT/capita comparisons for projects in the unincorporated area of San Diego County be made to the overall average VMT/capita for the unincorporated area of the county. The SANDAG VMT analysis tool described below is based on determining VMT/capita averages for each city or community in the region. Comparing projects in the unincorporated county area of the county to the average VMT/capita of the cities will result in a double-counting of VMT/capita values in the cities. For the reasons described in the bullet above, these guidelines also recommend that VMT/employee comparisons be made at both the regional and at the city-wide level or community level.

It is recommended that once the SB 743 analysis communities have been defined by local jurisdictions, SANDAG should then calculate the average VMT/capita (for residential projects) and the average VMT/employee (for employment projects) for each city or community. This calculation can be based on the Regional Transportation Improvement Plan (RTIP) scenario for future land use and transportation network which includes expected growth through the end of the RTIP scenario and transportation network improvements that are considered to be funded through the RTIP. It is recommended that the RTIP scenario used for VMT analysis purposes will be held constant once it is created and will only be changed once every four years with the update of the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). It is recommended that the SANDAG online VMT analysis tool (described below) also be held constant and be updated every four years.

Retail development falls into a category which is neither considered to be residential nor employment-based. For retail projects, these guidelines are based on the methodology recommended by OPR for retail projects. It is recommended that local-serving retail projects be presumed to have less than significant VMT impacts and regional-serving retail projects be presumed to have significant VMT impacts if they increase VMT above the level that would occur for conditions without the project.

For some land development projects, it may not be immediately obvious whether the project is a residential project or an employment project. For these projects, the preferred methodology is to analyze the trip-making characteristics of the project and then use either the residential or employment methodology. For example, a hotel may be considered to have trip-making characteristics closer to an employment project and therefore the employment methodology could be used for this land use category.

The recommended methodology for calculation of VMT depends on the size of the project as determined by the project's trip generation calculated in terms of ADT. For projects with a trip generation of less than 2,400 ADT, the recommended VMT analysis methodology is the SANDAG VMT calculation tool. SANDAG has prepared an online tool that calculates average VMT/capita and VMT/employee at the census tract level. Analysts would use this tool to determine the project's VMT/employee or VMT/capita to be compared to community, city, and/or regional averages.

Definitions of VMT/capita and VMT/employee that are used in SANDAG's VMT calculation tool are as follows:

- VMT/Capita: Includes all vehicle-based person trips grouped and summed to the home location of individuals on the trip. It includes home-based and non-home-based trips. The VMT for each home is then summed for all homes in a particular census tract and divided by the population of that census tract to arrive at Resident VMT/Capita.

- VMT/Employee: Includes all vehicle-based person trips grouped and summed to the work location of individuals on the trip. This includes all trips, not just work-related trips. The VMT for each work location is then summed for all work locations in a particular census tract and divided by the number of employees of that census tract to arrive at Employee VMT/Employee.

The recommended methodology for projects over 2,400 ADT is to run the regional transportation model with and without the project to determine the project's net increase in VMT and then use that value to determine VMT/employee or VMT/capita to be compared to community, city, and/or regional averages.

REDVELOPMENT PROJECTS

Recommendations for VMT analysis of redevelopment projects are based on guidance provided by OPR with the clarifications provided below.

Redevelopment projects represent a special case since the recommended VMT thresholds for SB 743 implementation represent an efficiency metric. Under SB 743, the primary goal is for all new land development projects to achieve efficiency from a VMT point of view. The efficiency or lack of efficiency of the existing land use is typically not relevant per OPR.

The following methodology is recommended:

- A redevelopment project that reduces absolute VMT (i.e. the total VMT with the project is less than the total VMT without the project) would be presumed to have less than significant VMT impacts.

- If a project increases absolute VMT, it is recommended that the VMT analysis methodology described above be applied to the proposed land use, as if the project was proposed on a vacant parcel (i.e. the existing land use didn't exist).

OPR's technical advisory includes specific recommendations that relate to redevelopment projects that replace affordable residential units with a smaller number of market-rate residential units. Those recommendations also considered applicable for the purposes of these guidelines.

MIXED-USE PROJECTS

Recommendations for VMT analysis of mixed-use projects are based on guidance provided by OPR with additional clarifications recommended for use in the San Diego region.

The following steps are recommended:

- Calculate trip generation separately for each component of the mixed-use project.

- Determine the reduction in external vehicle trips due to internal capture based on guidance provided in the ITE Trip Generation manual, MXD methodologies or other techniques.

- Apply the reduction in trips to the individual land uses so that the total trip generation of the individual land uses is equal to the total project trip generation, including internal capture.

- Using the reduced trip generation, determine the VMT/capita or VMT/employee for applicable land uses. SANDAG's online VMT calculation tool may be used to determine an average trip length for the land uses within a mixed-use development based on the reported VMT/capita or VMT/employee in the census tract where the project is located. The number of residents or employees will need to be estimated for each applicable land use. When using SANDAG's VMT calculation tool to estimate average trip length, analysts should be aware that the data produced by the SANDAG VMT calculation tool is based all resident VMT/capita, so it includes the VMT associated with all trips made by the resident for the day, for example trip from home to daycare to office; office to meeting to office; office to store to home. The ITE trip generation rate for residential is only home-based trips, i.e. trips that start or end at the residence. The effect of the distinction between ITE's data and the data produced by the SANDAG VMT calculation tool will vary by location, type of project, and other factors.

- Compare the VMT/capita or VMT/employee values calculated using the reduced trip generation to applicable VMT thresholds to determine whether the individual components of the mixed-use development would be expected to have a significant VMT impact. If any component of the mixed-use development would be expected to have a significant VMT impact, the project as a whole would be considered to have a significant VMT impact.

- Local-serving retail within a mixed-use development can be presumed to have a less than significant VMT impact.

PROJECTS IN RURAL AREAS

Land development projects in rural areas may be given special consideration due to their unique trip-making characteristics. OPR's technical advisory contains the following guidance regarding projects in rural areas:

- "In rural areas of non-MPO counties (i.e., areas not near established or incorporated cities or towns), fewer options may be available for reducing VMT, and significance thresholds may be best determined on a case-by-case basis. Note, however, that clustered small towns and small town main streets may have substantial VMT benefits compared to isolated rural development, similar to the transit oriented development described above."

If interpreted literally, this guidance would not apply to the San Diego region since it is an MPO County. However, rural areas are considered to have similar trip-making characteristics regardless of whether they are located in an MPO County or not. Therefore, different thresholds than described above could be considered for the rural areas of San Diego County. In order to apply this concept, local agencies would designate a portion of their jurisdiction as rural and then establish a separate threshold for the determination of significant VMT impacts.

PHASED PROJECTS

For projects proposed to be built in phases, it is recommended that each phase of the project be evaluated separately. This evaluation would include a determination of whether significant VMT impacts would occur and whether mitigation is recommended. The evaluation of VMT for each phase would include consideration of the previous project phases. For example, a project with three phases would include the following analyses:

- VMT Analysis of Phase 1: Assumes development of Phase 1 only.
- VMT Analysis of Phase 2: Assumes development of Phases 1 and 2.
- VMT Analysis of Complete Project: Assumes development of Phases 1, 2, and 3.

MITIGATION

If a project's VMT exceeds the thresholds identified above for individual land development projects and specific plans, it can be presumed to have a significant transportation impact. According to the OPR's technical advisory, when a significant impact is determined, feasible mitigation measures must be identified that could avoid or substantially reduce the impact. Lead agencies are generally given the discretion to determine what mitigation actions are 'feasible' but they must rely on substantial evidence in making these determinations. In addition, CEQA requires the identification of feasible mitigation alternatives that could avoid or substantially reduce a project's significant environmental impacts.

Not all mitigation measures are physical improvements to the transportation network. A sample mitigation measure might include telework options for employees to reduce vehicular travel. Examples of other mitigation measures based on OPR's technical advisory include but are not limited to the following:

- Improve or increase access to transit.
- Increase access to common goods and services, such as groceries, schools, and daycare.
- Incorporate affordable housing into the project.
- Incorporate a neighborhood electric vehicle network.
- Orient the project toward transit, bicycle, and pedestrian facilities.
- Improve pedestrian or bicycle networks, or transit service.
- Provide traffic calming.
- Provide bicycle parking.
- Limit or eliminate parking supply.
- Unbundle parking costs.
- Provide parking or roadway pricing or cash-out programs.
- Implement or provide access to a commute reduction program.
- Provide car-sharing, bike sharing, and ride-sharing programs.
- Provide partially or fully subsidized transit passes.
- Shift single occupancy vehicle trips to carpooling or vanpooling by providing ride-matching services or shuttle services.
- Provide telework options.
- Provide incentives or subsidies that increase the use of modes other than a single-occupancy vehicle.
- Provide on-site amenities at places of work, such as priority parking for carpools and vanpools, secure bike parking, showers and locker rooms, and bicycle repair services.
- Provide employee transportation coordinators at employment sites.
- Provide a guaranteed ride home service to users of non-auto modes.
- Contribute to a mobility fee program that funds multimodal transportation improvements, such as those described above.

Additional mitigation measures may become acceptable as agencies continue to innovate and find new ways to reduce vehicular travel.

Changes to the project design or location could potentially reduce VMT. Project alternatives based on OPR's technical advisory that may reduce vehicle miles of travel include but are not limited to the following:

- Locate the project in an area of the region that already exhibits low VMT.
- Locate the project near transit.
- Increase project density.
- Increase the mix of uses within the project or within the project's surroundings.
- Increase connectivity and/or intersection density on the project site.

OPR's technical advisory notes that because VMT is largely a regional impact and regional VMT-reduction programs may be an appropriate form of mitigation. In-lieu fees and development impact fees have been found to be valid mitigation where there is both a commitment to pay fees and evidence that mitigation will actually occur.

Fee programs are particularly useful to address cumulative impacts. The physical improvements that constitute the mitigation program as a whole must undergo CEQA evaluation, and the imposition of development impact fees or in-lieu fees shall be in accordance with applicable regulations, such as the Mitigation Fee Act. Other mitigation must be evaluated on a project-specific basis. That CEQA evaluation could be part of a larger program, such as a regional transportation plan analyzed in a Program EIR.

Quantifying the reduction in VMT associated with potential mitigation measures for land development projects and specific plans is a relatively new endeavor for transportation engineers and planners. Therefore, these guidelines do not recommend a methodology that has been in practice or has generally been accepted for local use.

One current resource that has been identified to quantify the reduction in vehicle miles traveled associated with a particular mitigation measure is the latest edition of California Air Pollution Control Officers Association's *Quantifying Greenhouse Gas Mitigation Measures, A resource for Local Government to Assess Emission Reductions from Green Gas Mitigation Measures* report (CAPCOA Report). This report provides a methodology to quantify the reductions in vehicle miles traveled for many of the mitigation measures listed above. At the time of preparation of these guidelines, new research was underway that would provide an update to the CAPCOA Report.

The following elements should be considered when utilizing the CAPCOA Report:

- The CAPCOA VMT reduction strategies include built environment changes and transportation demand management (TDM) actions. The built environment changes are scalable from the project site to larger geographic areas and are often captured in regional travel forecasting models such as the SANDAG model. Prior to any application of a built environment change to a project as mitigation, the project analyst should verify that the project VMT forecasting tool or model is appropriately accurate and sensitive to built-environment effects and that no double counting will occur in the application of the mitigation measure. The TDM actions are sensitive to the project site and ultimate building tenants. As such, VMT reductions associated with TDM actions cannot be guaranteed through CEQA mitigation without ongoing monitoring and adjustment.

- There are rules for calculating the VMT reduction when applying multiple mitigation measures. The CAPCOA Report rules should be considered.

- Only "new" mitigation measures should be included in the analysis to prevent double counting. For example, if the project is located near transit, the VMT reduction cannot be applied if the project utilized a model that factored in the project's proximity to transit. In addition, telecommuting is included in SANDAG's base model.

- Mitigation measures should be applied to the appropriate user group (employees, guest/patrons, etc.). If a certain measure applies to multiple user groups, the weighted average should be considered as the effect of the mitigation measure will vary based on the user group.

A second potential resource that was underway at the time of preparation of these guidelines was a VMT calculation tool that may be provided as part of SANDAG's Mobility Management Toolbox project.

Additional VMT calculation tools are currently available or under development by several local agencies in California. Although these tools are being developed for specific jurisdictions, they could be adopted or modified for use in individual jurisdictions in San Diego County. At the time of development of these guidelines, the following calculation tools were publicly available.

- City of San Jose: A VMT calculation tool and other information can be found at the following website: http://www.sanjoseca.gov/vmt

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5.0 COMMUNITY PLANS AND GENERAL PLANS

The recommended methodology for conducting a VMT analysis for community plans and general plans is to compare the existing VMT/capita for the community plan or general plan area with the expected horizon year VMT/capita. The recommended target is to achieve a lower VMT/capita in the horizon year with the proposed plan than occurs for existing conditions.

The calculation of VMT for a planning area requires different considerations than the calculation of VMT for an individual project or a specific plan. Generally, the use of a computerized travel forecasting model (such as the SANDAG regional model) would be needed. For details on the calculation of VMT for a planning area, analysts are referred to ITE's paper on VMT calculations (Vehicle Miles Travelled Calculations Using the SANDAG Regional Model, 2013).

If VMT analysis for a community plan or general plan requires consideration of mitigation measures to mitigate significant VMT impacts, potential mitigation measures would be similar to those used for land development projects, with some modifications. The following measures could be considered:

- Modify land use plan to increase development in areas with low VMT/capita characteristics and/or decrease development in areas with high VMT/capita characteristics.
- Provide enhanced bicycle and/or pedestrian facilities.
- Add roadways to the street network if those roadways would provide shorter travel paths for existing and/or future trips.
- Improve or increase access to transit.
- Increase access to common goods and services, such as groceries, schools, and daycare.
- Incorporate a neighborhood electric vehicle network.
- Provide traffic calming.
- Limit or eliminate parking supply.
- Unbundle parking costs.
- Provide parking or roadway pricing or cash-out programs.
- Implement or provide access to a commute reduction program.
- Provide car-sharing, bike sharing, and ride-sharing programs.
- Provide partially or fully subsidized transit passes.
- Shift single occupancy vehicle trips to carpooling or vanpooling by providing ride-matching services or shuttle services.
- Provide telework options.
- Provide incentives or subsidies that increase the use of modes other than a single-occupancy vehicle.
- Provide employee transportation coordinators at employment sites.
- Provide a guaranteed ride home service to users of non-auto modes.

Additional mitigation measures may become acceptable as agencies continue to innovate and find new ways to reduce vehicular travel.

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6.0 TRANSPORTATION PROJECTS

VMT is the recommended performance measure for the analysis of transportation projects. The recommended methodology for conducting a VMT analysis for transportation projects is to compare the project with the community plan or general plan in which the project is located to determine whether the project would increase VMT as compared to the VMT that would be expected to occur with community plan or general plan. This is summarized in Figure 6-1. The analysis would vary depending on the mode of travel associated with the project and based on whether the project is currently included in the community plan or general plan.

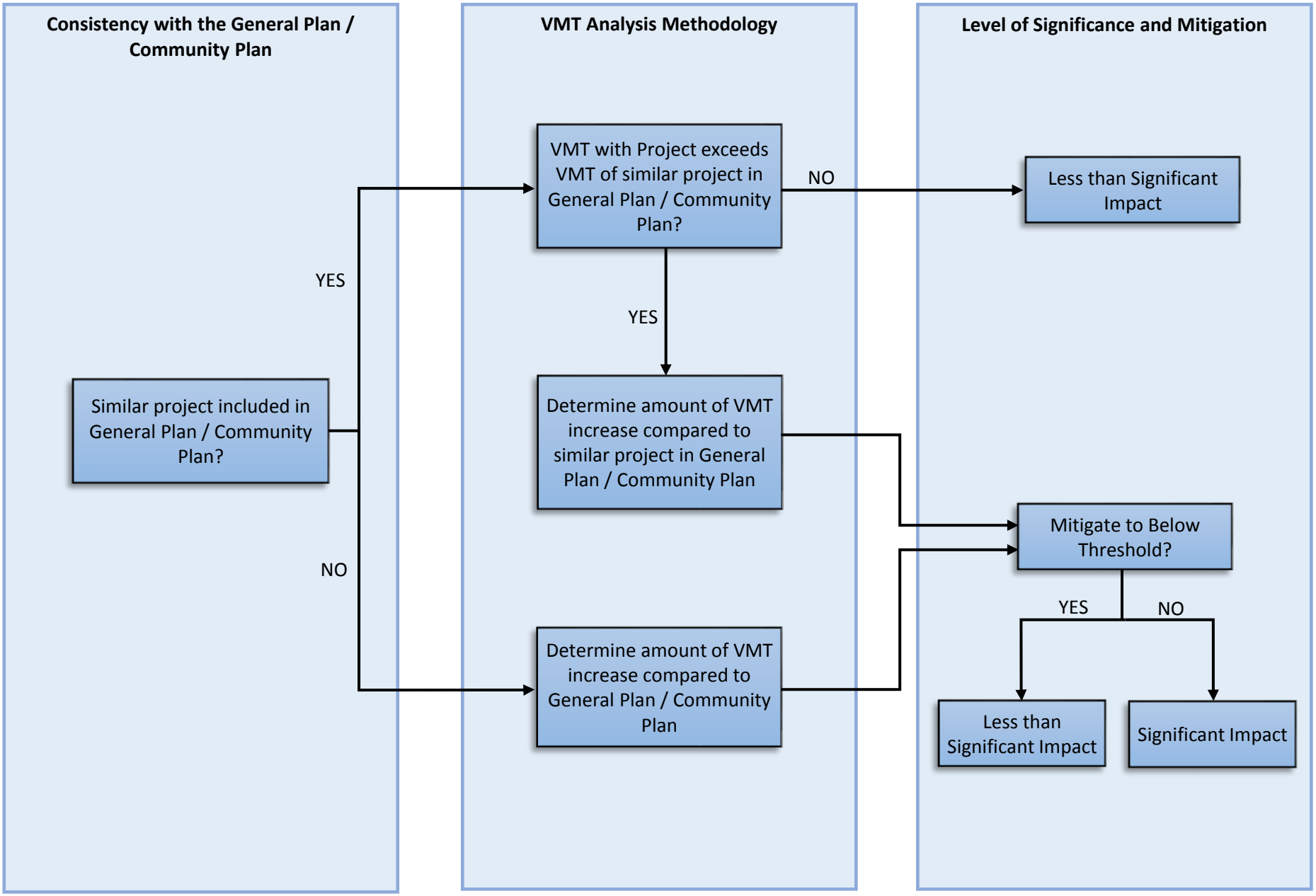
- Transit, bicycle, and pedestrian projects that would encourage the use of these modes of travel would be expected to reduce VMT would not require a detailed VMT analysis and would be presumed to have a less than significant impact on transportation. For these project types, the presumption of less than significant impact would apply even if the project was not in the community plan or general plan.

- Roadway projects (or multimodal projects that include roadways) that are included in the community or general plan, VMT impacts would be presumed to have less than significant VMT impacts. In the case of some projects, a similar project may have been included in the community plan or general plan, but revisions or refinements have been incorporated. If the revisions or refinements are expected to cause increases in VMT, analysis should be conducted to compare the proposed project to the project description in the community plan or general plan. Projects that cause VMT increases in comparison to similar projects proposed in the community plan or general plan, would need to reduce VMT levels below the level of VMT expected in the community plan or general plan in order to avoid a significant VMT impact.

- Roadway projects (or multimodal projects that include roadways) that are not included in the community or general plan would need, a detailed analysis of VMT to determine whether the project would be expected to increase or decrease VMT as compared to VMT levels in the community plan or general plan. For small projects, the VMT analysis could be conducted using sketch planning techniques. For large projects, the analysis would generally require the use of a computerized travel forecasting model (such as the SANDAG regional model). For very large projects (i.e. projects that would reduce travel time by five minutes or more for any individual trips), consideration should be given to conducting an analysis of induced demand as described in OPR's technical advisory The five-minute threshold for analysis of induced demand is based on a research paper published by the Transportation Research Board (Effects of Increased Highway Capacity: Results of Household Travel Behavior Survey, Richard G. Dowling and Steven B. Colman, Transportation Research Record 1493, Transportation Research Board, 1995). This research concluded that projects that decrease travel time by more than five minutes for a large number of trips would probably warrant an upward adjustment of travel demand.

The statewide guidance for VMT analysis of transportation projects is less specific than the guidance provided for land development projects. In the case of transportation projects, new CEQA guidance allows lead agencies the discretion to choose the performance measure for transportation analysis, including the use of level of service and delay as a performance measure. OPR's technical advisory provides guidance indicating that VMT is the preferred measure of effectiveness for transportation projects but it has no authority to require the use of VMT as a performance measure. Although OPR's technical advisory

Figure 6-1
VMT Analysis Flow Chart for Transportation Projects



encourages the use of VMT as a performance measure, it does not recommend a particular threshold of significance for VMT.

Given the available statewide guidance, these guidelines recommend the use of VMT as the performance measure for transportation projects. The recommended significance threshold is the level of VMT expected based on the community plan or general plan in which the project is located. This methodology is recommended for the following reasons:

- Although the new CEQA guidance allows for the use of any appropriate performance measure for the analysis of transportation projects, the intent of the SB 743 legislation was taken into consideration in the selection of a performance measure. SB 743 is intended to promote multimodal transportation networks, encourage infill development, and reduction of greenhouse gases. VMT is considered to be the performance measure that best reflects this intent.

- OPR's technical advisory encourages the use of VMT as a performance measure. Although this recommendation is not binding, the intent of these guidelines is to follow OPR's guidance, except in cases where there are regional characteristics or other factors that suggest a revision or clarification.

- The use of community plan or general plan consistency as a VMT threshold is based on the process by which transportation projects are incorporated into a community plan or general plan. In order for a transportation project to be incorporated into a community or general plan, a considerable amount of analysis is typically conducted. Community plans and general plans typically include the preparation of an Environmental Impact Report that considers a variety of environmental impacts, including transportation impacts. Since community plans and general plans are considered to represent sound urban planning decisions, consistency with these plans is considered to be a reasonable benchmark for the determination of a VMT significance threshold.

While the guidance described above is considered to be appropriate for larger transportation projects, smaller projects would be presumed to have less than significant VMT impacts based on their size or other considerations. Following is a list of projects considered to be in this category. This list in based on information in OPR's technical advisory, with revisions and clarifications based on local conditions:

1. Rehabilitation, maintenance, replacement and repair projects designed to improve the condition of existing transportation assets (e.g., highways, roadways, bridges, culverts, tunnels, transit systems, and assets that serve bicycle and pedestrian facilities) and that do not add motor vehicle capacity

2. Roadside safety devices or hardware installation such as median barriers and guardrails

3. Roadway shoulder enhancements to provide "breakdown space," dedicated space for use only by transit vehicles, to provide bicycle access, or otherwise to improve safety, but which will not be used as automobile vehicle travel lanes

4. Addition of an auxiliary lane of less than two miles in length

5. Installation, removal, or reconfiguration of traffic lanes at intersections that are intended to provide operational or safety improvements

6. Addition of roadway capacity on local or collector streets provided the project also includes appropriate improvements for pedestrians, cyclists, and, if applicable, transit

7. Conversion of existing general purpose lanes (including ramps) to managed lanes or transit lanes, or changing lane management in a manner that would not substantially increase vehicle travel

8. Addition of a new lane that is intended to be restricted to use only by transit vehicles

9. Reduction in number of through lanes

10. Grade separation to separate vehicles from rail, transit, pedestrians or bicycles, or to replace a lane in order to separate preferential vehicles (e.g., HOV, HOT, or trucks) from general vehicles

11. Installation, removal, or reconfiguration of traffic control devices, including Transit Signal Priority (TSP) features

12. Installation of traffic metering systems, detection systems, cameras, changeable message signs, and other electronics designed to optimize vehicle, bicycle, or pedestrian flow

13. Timing of signals to optimize vehicle, bicycle, or pedestrian flow

14. Installation of roundabouts or traffic circles

15. Installation or reconfiguration of traffic calming devices

16. Adoption of or increase in tolls

17. Addition of tolled lanes, where tolls are sufficient to mitigate any potential VMT increase

18. Initiation of new transit service

19. Conversion of streets from one-way to two-way operation with no net increase in number of traffic lanes

20. Removal or relocation of off-street or on-street parking spaces

21. Adoption or modification of on-street parking or loading restrictions (including meters, time limits, accessible spaces, and preferential/reserved parking permit programs)

22. Addition of traffic wayfinding signage

23. Addition of new or enhanced bike or pedestrian facilities on existing streets/highways or within existing public rights-of-way

24. Addition of Class I bike paths, trails, multi-use paths, or other off-road facilities that serve non-motorized travel

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25. Installation of publicly available alternative fuel/charging infrastructure

26. Addition of passing lanes, truck climbing lanes, or truck brake-check lanes in rural areas that do not increase overall vehicle capacity along the corridor

27. Roadway striping modifications that don't change the number of through lanes

Regardless of the project type and analysis method, projects that would be expected to have a significant VMT increase would be expected to consider mitigation measures. Potential mitigation measures would include:

- Deploy management strategies (e.g., pricing, vehicle occupancy requirements) on roadways or roadway lanes.
- Improve pedestrian or bicycle networks, or transit service.

Additional mitigation measures may become acceptable as agencies continue to innovate and find new ways to reduce vehicular travel.

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PART II – LOCAL TRANSPORTATION ANALYSIS

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7.0 ROADWAY

It is recommended that consideration be given to preparation of a local transportation analysis (LTA) for all land development and transportation projects. This section describes the recommended methodology for analysis of local roadway conditions.

The purpose of the roadway analysis portion of an LTA is to forecast, describe, and analyze how a development will affect existing and future circulation infrastructure for users of the roadway system, including vehicles, bicycles, pedestrians and transit. The LTA assists transportation engineers and planners in both the development community and public agencies when making land use, mobility infrastructure, and other development decisions. An LTA quantifies the expected changes in transportation conditions and translates these changes into transportation system impacts in the vicinity of a project.

The roadway transportation analysis included in an LTA is separate from the transportation impact analysis conducted as part of the environmental (CEQA) project review process, as described in Part I. The purpose of the roadway transportation analysis is to ensure that all projects provide a fair share of roadway infrastructure improvements in order to accommodate their multimodal transportation demands.

The following guidelines were prepared to assist local agencies throughout the San Diego Region in promoting consistency and uniformity in local transportation studies. These guidelines do not establish a legal standard for these functions but are intended to supplement any individual manuals or level of service objectives for the various jurisdictions. These guidelines attempt to consolidate regional efforts to identify when an LTA is needed, what professional procedures should be followed, and what constitutes a significant traffic effect that should be dealt with.

The instructions outlined in these guidelines are subject to update as future conditions and experience become available. Special situations may call for variation from these guidelines. A scoping letter from the project applicant to the jurisdiction and the project applicant is recommended for each individual project to verify the application of these guidelines. Caltrans and lead agencies should agree on the specific methods used in local transportation analysis studies involving any State Route facilities, including metered and unmetered freeway ramps.

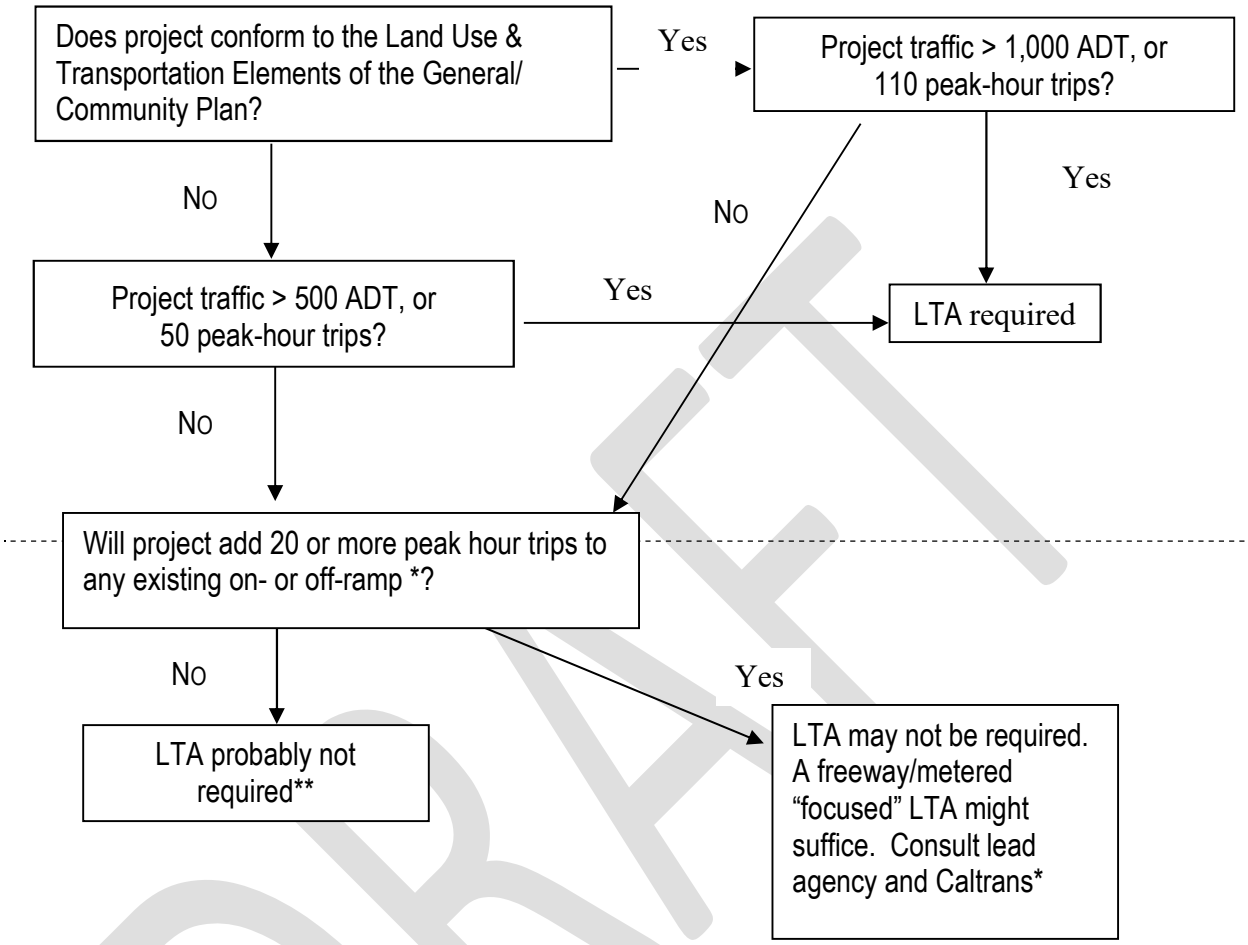
NEED FOR A STUDY

Figure 7-1 shows the flow chart for determination of when a roadway analysis should be conducted. A roadway analysis should be prepared for all projects which generate traffic greater than 1,000 total average daily driveway trips (ADT) or 100 peak-hour trips. If a proposed project is not in conformance with the land use and/or transportation element of the general or community plan, use threshold rates of 500 ADT or 50 peak-hour trips.

Early consultation with any affected jurisdictions is strongly encouraged since a “focused” or “abbreviated” roadway analysis may still be required – even if the above threshold rates are not met. An understanding of the level of detail and the assumptions required for the analysis should be reached. A pre-submittal in-person conference may not be a required; however, the applicant should prepare a scoping letter for the agency’s review and approval prior to preparation of the analysis.

Figure 7-1

FLOW CHART FOR LTA ROADWAY ANALYSIS



* Check with Caltrans for current ramp metering rates. (See Attachment B – Ramp Metering Analysis)

** However, for health and safety reasons, and/or local and residential street issues, an "abbreviated" or "focused" LTA may still be requested by a local agency. (For example, this may include traffic backed up beyond an off-ramp's storage capacity or may include diverted traffic through an existing neighborhood.)

*** Driveway trips would generally be used in this chart rather than total trips generated.

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STUDY PARAMETERS

It is recommended that the geographic area examined in the LTA include the following for roadways:

- All local roadway segments between signalized intersections (including all State surface routes), intersections, and mainline freeway locations where the proposed project will add 50 or more peak-hour trips in either direction to the existing roadway traffic.
- All freeway entrance and exit ramps where the proposed project will add a substantial number of peak-hour trips to cause any traffic queues to exceed ramp storage capacities (see Figure 1). (NOTE: Care must be taken to include other ramps and intersections that may receive project traffic diverted as a result of already existing, or project causing congestion at freeway entrances and exits.)

The data used in the LTA should generally not be more than 2 years old and should not reflect a temporary interruption (special events, construction detour, etc.) in the normal traffic patterns unless that is the nature of the project itself. If recent traffic data is not available, current counts should be made by the project applicant/consultant. For areas near beaches or bays, counts should be taken during summer or adjusted to reflect summer conditions.

In general, the region-wide goal for roadway level-of-service (LOS) on all freeways, roadway segments, and intersections is "D." For central urbanized areas, the goal may be to achieve a level-of-service of "E". Individual jurisdictions have slightly different LOS objectives.

SCENARIOS TO BE STUDIED

The following scenarios are recommended to be addressed in the roadway analysis (unless there is concurrence with the lead agency(ies) that one or more of these scenarios may be omitted). Some exceptions are noted at the end of this list:

Existing Conditions: Document existing traffic levels and peak-hour levels of service in the study area. Identify locations where roadways do not meet target levels of service for existing conditions.

Existing Plus Project Conditions: Analyze the impacts of the proposed project in addition to existing conditions. This scenario identifies the effect of a project on the transportation network with no other changes in conditions.

Near-term (approved and pending): Analyze the cumulative conditions resulting from the development of "other" approved and "reasonably foreseeable" pending projects (application on file) that are expected to influence the study area. This is the baseline against which project effects are assessed. The lead agency may be able to provide copies of the traffic studies for the "other" projects if they are already approved. If data is not available for near-term cumulative projects, an ambient growth factor should be used. If applicable, transportation network improvements should also be included in this scenario. This would include programmed and fully funded network improvements that are scheduled to open prior to the project's expected opening day.

Near-term + Proposed Project: Analyze the effects of the proposed project at its expected opening day in addition to near-term baseline conditions. For phased projects, a separate analysis could be conducted for each phase.

Horizon Year: Identify traffic forecasts, typically 20 years in the future, through the output of a SANDAG model forecast or other computer model approved by the local agency.

Horizon Year + Proposed Project: Analyze the additional project traffic impacts to the horizon year condition. When justified, and particularly in the case of very large developments or new general/community plans, a transportation model should be run with, and without, the additional development to show the net impacts on all parts of the area's transportation system.

Analysis of near-term scenarios may not be necessary if this scenario is incorporated in the agency's Traffic Impact Fee (TIF) program. If an agency has established a fee program to cover near-term improvements on all key roadways, the payment of traffic impact fees could be considered to be sufficient to offset a project's effect on these roadways.

Horizon year studies may not be needed, depending on the discretion of the lead agency. Reasons for including these scenarios may vary, but they would generally be added because the proposed project is substantially different than was expected in the Community Plan/General Plan or if the area near the project is expected to experience land use or network changes that have not been adequately accounted for in previous planning studies.

In order to use LOS criteria to determine the need for roadway improvements (see Table 7-1), proposed model or manual forecast adjustments must be made to address scenarios both with and without the project. Model data should be carefully verified to ensure accurate project and "other" cumulative project representation. In these cases, regional or subregional models conducted by SANDAG need to be reviewed for appropriateness.

PROJECT TRAFFIC GENERATION

Use of SANDAG [Traffic Generators manual and (Not So) Brief Guide….] or City of San Diego (Trip Generation Manual) rates should first be considered. Trip generation rates from ITE's latest Trip Generation manual or ITE Journal articles could also be considered. Smart growth projects should consider use of the SANDAG Smart Growth Trip Generation and Parking Study guidelines. If local and sufficient national data do not exist, conduct trip generation studies at multiple sites with characteristics similar to those of the proposed project.

Reasonable reductions to trip rates may also be considered: (a) with proper analysis of pass-by and diverted traffic on adjacent roadways, (b) for developments near transit stations, and (c) for mixed-use developments. (Note: Caltrans and local agencies may use different trip reduction rates. Early consultation with the reviewing agencies is strongly recommended.)

Project trips can be assigned and distributed either manually or by a computer model based upon review and approval of the local agency Traffic Engineer. The magnitude of the proposed project will usually determine which method is employed.

If the manual method is used, the trip distribution percentages could be derived from existing local traffic patterns or optionally (with local agency approval) by professional judgement.

If the computer model is used, the trip distribution percentages could be derived from a computer generated "select zone assignment". The centroid connectors should accurately represent project access to the street network. Preferably the project would be represented by its own traffic zone. Some adjustments to the output volumes may be needed (especially at intersections) to smooth out volumes, quantify peak volumes, adjust for pass-by and diverted trips, and correct illogical output.

ANALYSIS OF PROJECT EFFECT ON THE ROADWAY SYSTEM

It is recommended that the roadway analysis determine the effect that a project will have for each of the previously outlined study scenarios. Peak-hour capacity analyses for freeways, roadway

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segments (ADTs may be used here to estimate V/C ratios), intersections, and freeway ramps can be conducted for existing, near-term, and long-term conditions. The methodologies used in determining the traffic impact are not only critical to the validity of the analysis, they are pertinent to the credibility and confidence the decision-makers have in the resulting findings, conclusions, and recommendations. Methodologies for roadway capacity analyses vary by agency and change over time so it is recommended that consultation be conducted with the lead agency and/or Caltrans to determine an appropriate methodology for a particular study.

NEED FOR ROADWAY IMPROVEMENTS

Table 7-1 indicates when a project's effect on the roadway system is considered to justify need for roadway improvements. That is, if a project's traffic effect causes the values in this table to be exceeded, roadway improvements should be considered. Table 7-2 provides guidance on the levels of ADT that can be accommodated on various types of roadways, based on level of service.

It is the responsibility of Caltrans, on Caltrans initiated projects, to analyze the effect of ramp metering, for initial as well as future operational impacts, on local streets that intersect and feed entrance ramps to the freeway. Developers and/or local agencies, however, should consider improvements to existing ramp meter facilities, future ramp meter installations, or local streets, when those impacts are attributable to new development and/or local agency roadway improvement projects.

Not all improvement measures can feasibly consist of roadway widening (new lanes or new capacity). A sample improvement might include financing toward a defined ITS (Intelligent Transportation System) project, enhanced traffic signal communications project, or active transportation projects. This type of improvement would allow a project applicant (especially with a relatively small project) to provide improvements to the roadway system by paying into a local or regional fee program, providing the fee can be established in the near future.

Other mitigation measures may include Transportation Demand Management recommendations – transit facilities, bike facilities, walkability, telecommuting, traffic rideshare programs, flex-time, carpool incentives, parking cash-out, complete or partial subsidization of transit passes, etc. Additional mitigation measures may be identified as future technologies and policies evolve.

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Table 7-1

DETERMINATION OF THE NEED FOR ROADWAY IMPROVEMENTS

LEVEL OF SERVICE WITH PROJECT*	ALLOWABLE CHANGE DUE TO PROJECT EFFECT**					
	FREEWAYS		ROADWAY SEGMENTS		INTERSECTIONS	RAMP*** METERING
	V/C	SPEED (MPH)	V/C	SPEED (MPH)	DELAY (SEC.)	DELAY(MIN.)
E, & F (OR RAMP METER DELAYS ABOVE 15 MIN.)	0.01	1	0.02	1	2	2

NOTES:

* All level of service measurements are based upon Highway Capacity Manual (HCM) procedures for peak-hour conditions. However, V/C ratios for Roadway Segments may be estimated on an ADT/24-hour traffic volume basis (using Table 7-2 or a similar LOS chart for each jurisdiction). The target LOS for freeways, roadways, and intersections is generally "D". For metered freeway ramps, LOS does not apply; However, ramp meter delays above 15 minutes are considered excessive.

** If a proposed project's traffic causes the values shown in the table to be exceeded, the effects of the project are determined to justify improvements. These changes may be measured from appropriate computer programs or expanded manual spreadsheets. The project applicant shall then identify feasible improvements within the LTA report that will maintain the traffic facility at the target LOS or restore to pre-project conditions. If the LOS with the proposed project becomes worse than the target (see above * note), or if the project adds a significant amount of peak-hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, roadway improvements should be considered.

*** See Attachment B for ramp metering analysis.

KEY:
V/C = Volume to Capacity ratio
Speed = Speed measured in miles per hour
Delay = Average stopped delay per vehicle measured in seconds for intersections, or minutes for ramp meters
LOS = Level of Service

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Table 7-2

ROADWAY CLASSIFICATIONS, LEVELS OF SERVICE (LOS) AND AVERAGE DAILY TRAFFIC (ADT)

			LEVEL OF SERVICE W/ADT				
STREET CLASSIFICATION	LANES		A	B	C	D	E
Expressway	6 lanes		30,000	42,000	60,000	70,000	80,000
Prime Arterial	6 lanes		25,000	35,000	50,000	55,000	60,000
Major Arterial	6 lanes		20,000	28,000	40,000	45,000	50,000
Major Arterial	4 lanes		15,000	21,000	30,000	35,000	40,000
Major Arterial (One-Way)	3 lanes		12,500	16,500	22,500	25,000	27,500
Major Arterial (One-Way)	2 lanes		10,000	13,000	17,500	20,000	22,500
Secondary Arterial/ Collector	4 lanes		10,000	14,000	20,000	25,000	30,000
Collector (no center lane)	4 lanes		5,000	7,000	10,000	13,000	15,000
Collector (continuous left-turn lane)	2 lanes		5,000	7,000	10,000	13,000	15,000
Collector (no fronting property)	2 lanes		4,000	5,500	7,500	9,000	10,000
Collector (commercial- industrial fronting)	2 lanes		2,500	3,500	5,000	6,500	8,000
Collector (multi-family)	2 lanes		2,500	3,500	5,000	6,500	8,000
Collector (One-Way)	3 lanes		11,000	14,000	19,000	22,500	26,000
Collector (One-Way)	2 lanes		7,500	9,500	12,500	15,000	17,500
Collector (One-Way)	1 lane		2,500	3,500	5,000	6,500	7,500
Sub-Collector (single-family)	2 lanes		---	---	2,200	---	---

NOTES:

1. The volumes and the average daily level of service listed above are only intended as a general planning guideline.
2. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

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8.0 TRANSIT

It is recommended that the geographic area examined in the LTA include the following for transit:

- All existing transit lines and transit stops within a ½ mile walking distance of the project
- Any planned transit lines or upgrades within a ½ mile walking distance of the project

In general, the region-wide goal for evaluating pedestrian, bicycle, and transit facilities is to identify opportunities to increase connectivity, frequency of service, and level of comfort. Individual jurisdictions may have different qualitative or quantitative ways of performing these evaluations.

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9.0 BICYCLE

It is recommended that the geographic area examined in the LTA include the following for bicycle travel:

- All roadways adjacent to the project, extending in each direction to the nearest intersection with a classified roadway or with a Class I path
- Both directions of travel should be evaluated

In general, the region-wide goal for evaluating pedestrian, bicycle, and transit facilities is to identify opportunities to increase connectivity and level of comfort. Individual jurisdictions may have different qualitative or quantitative ways of performing these evaluations.

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10.0 PEDESTRIAN

It is recommended that the geographic area examined in the LTA include the following for pedestrians:

- All pedestrian facilities directly connected to project access points or adjacent to the project development, extending in each direction to the nearest intersection with a classified roadway or connection with a Class I path
- Facilities connecting to transit stops within two blocks of the project
- Only facilities on the side of the project or along the walking route to transit stop
- Additional geographic areas may be included in certain cases to address special cases such as schools or retail centers

In general, the region-wide goal for evaluating pedestrian, bicycle, and transit facilities is to identify opportunities to increase connectivity and level of comfort. Individual jurisdictions may have different qualitative or quantitative ways of performing these evaluations.

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APPENDICES

GUIDELINES FOR TRANSPORTATION IMPACT STUDIES IN THE SAN DIEGO REGION

APPENDIX A

ATTACHMENT A

Completed by Staff:
Date Received _____
Reviewer _____
Date Screen Check _____

TRAFFIC IMPACT STUDY SCREEN CHECK

To be completed by consultant (including page #):

Name of Traffic Study _____
Consultant _____
Date Submitted _____

Indicate Page # in report:			Satisfactory YES	Satisfactory NO	NOT REQUIRED
pg. ___	1.	Table of contents, list of figures and list of tables.	☐	☐	
pg. ___	2.	Executive summary.	☐	☐	
pg. ___	3.	Map of the proposed project location.	☐	☐	
	4.	General project description and background information:			
pg. ___		a. Proposed project description (acres, dwelling units….)	☐	☐	
pg. ___		b. Total trip generation of proposed project.	☐	☐	
pg. ___		c. Community plan assumption for the proposed site.	☐	☐	
pg. ___		d. Discuss how project affects the Congestion Management Program, if applicable	☐	☐	
pg. ___	5.	Parking, transit and on-site circulation discussions are included.	☐	☐	
pg. ___	6.	Map of the Transportation Impact Study Area and specific intersections studied in the traffic report.	☐	☐	
pg. ___	7.	Existing Transportation Conditions:			
		a. Figure identifying roadway conditions including raised medians, median openings, separate left and right turn lanes, roadway and intersection dimensions, bike lanes, parking, number of travel lanes, posted speed, intersection controls, turn restrictions and intersection lane configurations.	☐	☐	
		b. Figure indicating the daily (ADT) and peak-hour volumes.	☐	☐	
		c. Figure or table showing level of service (LOS) for intersections during peak hours and roadway sections within the study area (include analysis sheets in an appendix).	☐	☐	
	8.	Project Trip Generation:			
pg. ___		Table showing the calculated project generated daily (ADT) and peak hour volumes.	☐	☐	
pg. ___	9.	Project Trip Distribution using the current TRANPLAN Computer Traffic Model (provide a computer plot) or manual assignment if previously approved. (Identify which method was used.)	☐	☐	
	10.	Project Traffic Assignment:			
pg. ___		a. Figure indicating the daily (ADT) and peak-hour volumes.	☐	☐	
pg. ___		b. Figure showing pass-by-trip adjustments, and, if cumulative trip rates are used.	☐	☐	☐
	11.	Existing Near-term Cumulative Conditions:			
pg. ___		a. Figure indicating the daily (ADT) and peak-hour volumes.	☐	☐	
pg. ___		b. Figure or table showing the projected LOS for intersections during peak hours and roadway sections within the study area	☐	☐	

Indicate Page # in report:			Satisfactory YES	Satisfactory NO	NOT REQUIRED
		(analysis sheets included in the appendix).			
pg. ___	c.	Traffic signal warrant analysis (Caltrans Traffic Manual) for appropriate locations.	☐	☐	
	12.	Existing Near-term Cumulative Conditions + Proposed Project (each phase when applicable)			
pg. ___	a.	Figure or table showing the projected LOS for intersections during peak hours and roadway sections with the project (analysis sheets included in the appendix).	☐	☐	
pg. ___	b.	Figure showing other projects that were included in the study, and the assignment of their site traffic.	☐	☐	
pg. ___	c.	Traffic signal warrant analysis for appropriate locations.	☐	☐	
	13.	Horizon Year Transportation Conditions (if project conforms to the General/ Community Plan):			
pg. ___	a.	Horizon Year ADT and street classification that reflect the Community Plan.	☐	☐	☐
pg. ___	b.	Figure or table showing the horizon LOS for intersections during peak hours and roadway sections with and without the project (analysis sheets included in the appendix).	☐	☐	☐
pg. ___	c.	Traffic signal warrant analysis at appropriate locations.	☐	☐	☐
	14.	Horizon Year Transportation Conditions + Proposed Project (if project does not conform to the General/Community Plan):			
pg. ___	a.	Horizon Year ADT and street classification as shown in the Community Plan.	☐	☐	☐
pg. ___	b.	Horizon Year ADT and street classification for two scenarios: with the proposed project and with the land use assumed in the Community Plan.	☐	☐	☐
pg. ___	c.	Figure or table showing the horizon LOS for intersections during peak hours and roadway sections for two scenarios: with and without the proposed project and with the land use assumed in the Community Plan (analysis sheets included in the appendix).	☐	☐	☐
pg. ___	d.	Traffic signal warrant analysis at appropriate locations with the land use assumed in the General/Community Plan.	☐	☐	☐
pg. ___	15.	A summary table showing the comparison of Existing, Existing + Near-term Cumulative, Existing + Near-term Cumulative + Proposed Project, Horizon Year, and Horizon Year + Proposed Project (if different from General/Community Plan), LOS on roadway sections and intersections during peak hours.	☐	☐	
pg. ___	16.	A summary table showing the project's "significant traffic impacts."	☐	☐	
	17.	Transportation Mitigation Measures:			
pg. ___	a.	Table identifying the mitigations required that are the responsibility of the developer and others. A phasing plan is required if mitigations are proposed in phases.	☐	☐	
pg. ___	b.	Figure showing all proposed mitigations that include: intersection lane configurations, lane widths, raised medians, median openings, roadway and intersection dimensions, right-of-way, offset, etc.	☐	☐	
pg. ___	18.	The Highway Capacity Manual Operation Method or other approved method is used at appropriate locations within the study area.	☐	☐	

Indicate Page # in report:		Satisfactory YES	NO	NOT REQUIRED
pg. ___	19. Analysis complies with Congestion Management Program requirements.	☐	☐	☐
pg. ___	20. Appropriate freeway analysis is included.	☐	☐	☐
pg. ___	21. Appropriate freeway ramp metering analysis is included.	☐	☐	☐
pg. ___	22. The traffic study is signed by a California Registered Traffic Engineer.	☐	☐	

THE TRAFFIC STUDY SCREEN CHECK FOR THE SUBJECT PROJECT IS:

_____ Approved

_____ Not approved because the following items are missing:

_____

_____

_____

APPENDIX B

ATTACHMENT B

RAMP METERING ANALYSIS

Ramp metering analysis should be performed for each horizon year scenario in which ramp metering is expected. The following table shows relevant information that should be included in the ramp meter analysis "Summary of Freeway Ramp Metering Impacts."

LOCATION	DEMAND (veh/hr)[1]	METER RATE (veh/hr)[2]	EXCESS DEMAND (veh/hr)[3]	DELAY (min)[4]	QUEUE (feet)[5]

NOTES:

[1] DEMAND is the peak hour demand expected to use the on-ramp.

[2] METER RATE is the peak hour capacity expected to be processed through the ramp meter. This value should be obtained from Caltrans. Contact Carolyn Rumsey at (619) 467-3029.

[3] EXCESS DEMAND = (DEMAND) – (METER RATE) or zero, whichever is greater.

[4] $$\text{DELAY} = \frac{\text{EXCESS DEMAND}}{\text{METER RATE}} \times 60 \text{ MINUTES/HOUR}$$

[5] QUEUE = (EXCESS DEMAND) X 29 feet/vehicle

NOTE: Delay will be less at the beginning of metering. However, since peaks will almost always be more than one hour, delay will be greater after the first hour of metering. (See discussion on next page.)

SUMMARY OF FREEWAY RAMP METERING IMPACTS
(Lengthen as necessary to include all impacted meter locations)

LOCATION(S)	PEAK HOUR	PEAK HOUR DEMAND D	FLOW (METER RATE) F	EXCESS DEMAND E	DELAY (MINUTES)	QUEUE Q (feet)
	AM PM					
	AM PM					
	AM PM					

DISCUSSION OF RAMP METER ANALYSIS

A. CAUTION: The ramp metering analysis shown in Attachment B may lead to grossly understated results for delay and queue length, since important aspects of queue growth are ignored. Also, the draft guidelines method derives average values instead of maximum values for delay and queue length. Utilizing average values instead of maximum values can lead to obscuring important effects, particularly in regard to queue length.

Predicting ramp meter delays and queues requires a storage-discharge type of analysis, where a pattern of arriving traffic at the meter is estimated by the analyst, and the discharge, or meter rate, is a somewhat fixed value set by Caltrans for each individual metered ramp.

Since a ramp meter queue continues to grow longer during all times that the arrival rate exceeds the discharge rate, the maximum queue length (and hence, the maximum delay) usually occurs after the end of the peak (or highest) one hour. This leads to the need for an analysis for the entire time period during which the arrival rate exceeds the meter rate, not just the peak hour. For a similar reason, the analysis needs to consider that a substantial queue may have already formed by the beginning of the "peak hour." Traffic arriving during the peak hour is then stacked onto an existing queue, not just starting from zero as the draft analysis suggests.

Experience shows that the theoretical queue length derived by this analysis often does not materialize. Motorists, after a brief time of adjustment, seek alternate travel paths or alternate times of arrival at the meter. The effect is to approximately minimize total trip time by seeking out the best combinations of route and departure time at the beginning of the trip. This causes at least two important changes in the pattern or arriving traffic at ramp meters. First, the peak period is spread out, with some traffic arriving earlier and some traffic arriving later than predicted. Second, a significant proportion of the predicted arriving traffic will use another ramp, use another freeway, or stay on surface streets.

It is acceptable to make reasonable estimates of these temporal and spatial (time and occupying space) diversions as long as all assumptions are stated and that the unmodified, or theoretical values are shown for comparison.

B. Additional areas for study include being able to define acceptable levels of service (LOS) and "significant" thresholds (e.g., a maximum ramp meter delay of 15 minutes) for metered freeway entrance ramps.

Currently there are no acceptable software programs for measuring project impacts on metered freeway ramps nor does the Highway Capacity Manual (HCM) adequately address this issue. Hopefully in the near future a regionwide study will be initiated to determine what metering rate (at each metered ramp) would be required in order to guarantee that traffic will flow (even at LOS "E") on the entire freeway system during peak-hour conditions. From this, the ramp delays and resultant queue lengths might then be calculated. Overall, this is a very complex issue that needs considerable research and refinement in cooperation with Caltrans.

APPENDIX C

LEVEL OF SERVICE (LOS) DEFINITIONS (generally used by Caltrans)

The concept of Level of Service (LOS) is defined as a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. A Level of Service[s] definition generally describes these conditions in terms of such factors as speed, travel time, freedom to maneuver, comfort and convenience, and safety. Levels of Service definitions can generally be categorized as follows:

LOS	D/C*	Congestion/Delay	Traffic Description
		(Used for freeways, expressways and conventional highways[A])	
"A"	<0.41	None	Free flow.
"B"	0.42-0.62	None	Free to stable flow, light to moderate volumes.
"C"	0.63-0.79	None to minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted.
"D"	0.80-0.92	Minimal to substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver.
"E"	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor.
		(Used for conventional highways)	
"F"	>1.00	Considerable	Forced or breakdown. Delay measured in average flow, travel speed (MPH). Signalized segments experience delays >60.0 seconds/vehicle.
		(Used for freeways and expressways)	
"F0"	1.01-1.25	Considerable 0-1 hour delay	Forced flow, heavy congestion, long queues form behind breakdown points, stop and go.
"F1"	1.26-1.35	Severe 1-2 hour delay	Very heavy congestion, very long queues.
"F2"	1.36-1.45	Very severe 2-3 hour delay	Extremely heavy congestion, longer queues, more numerous breakdown points, longer stop periods.
"F3"	>1.46	Extremely severe 3+ hours of delay	Gridlock.

[s] Level of Service can generally be calculated using "Table 3.1. LOS Criteria for Basic Freeway Sections" from the latest Highway Capacity Manual. However, contact Caltrans for more specific information on determining existing "free-flow" freeway speeds.

* Demand/Capacity ratio used for forecasts (V/C ratio used for operational analysis, where V = volume)

[A] Arterial LOS is based upon average "free-flow" travel speeds, and should refer to definitions in Table 11.1 in the HCM.

Appendix C
SANDAG SB-743 VMT Analysis Results

City of Encinitas Base Yr VMT

Encinitas Tracts	Employees	VMT	VMT/Emp	Employees	VMT	VMT/Emp
17701	451	11483.76	25.4628846	5418	109320	20.17718
17702	949	26211.43	27.620052	2924	58035.45	19.84796
17501	6177	179530.8	29.0643991	2921	57235.4	19.59445
17401	2922	88041.59	30.1305912	5549	114894.6	20.70546
17303	2264	72519.45	32.0315587	3018	65928.58	21.84512
17305	217	6364.836	29.3310397	2998	66740.82	22.26178
17106	1962	67354.88	34.3297019	5244	141295.2	26.94417
17404	1347	38969	28.9302129	6384	128591.7	20.14281
17502	2325	66242.19	28.4912657	3349	53623.74	16.01187
17403	1644	46879.59	28.5155637	4916	100594.6	20.46269
17110	1464	46524.02	31.7786989	10929	244111.9	22.33616
17104	707	18955.2	26.8107442	3887	80645.88	20.74759
17108	3014	84242	27.950232	4655	91943.33	19.75152
17604	4246	120304.7	28.3336604	6974	129598.4	18.58308
17603	754	20785.97	27.5676053	2496	51520.71	20.64131
17601	3259	93915.64	28.8173169	4824	101550.8	21.05117
17107	1415	38528.02	27.2282845	2878	53255.58	18.50437
ENCINITAS TOTAL	**35117**	**1026853**	**29.240911**	**79364**	**1648887**	**20.77625**

Vehicle Miles of Travel Report

Scenario ID **989** **Fox Farm Follow Up - 2012 - Coaster Cities**

VMT per Resident

	Scenario ID	Residents	Total Trips	Person Miles of Travel	Vehicle Miles of Travel	VMT per Resident
Regionwide	989	3,129,417	11,211,651	73,624,387	54,858,289	17.5
Coaster Cities	989	354,608	1,303,856	8,697,391	6,650,813	18.8

VMT per Employee

	Scenario ID	Employees	Total Trips	Person Miles of Travel	Vehicle Miles of Travel	VMT per Employee
Regionwide	989	1,491,487	5,238,830	43,831,152	38,461,147	25.8
Coaster Cities	989	159,727	585,675	4,802,020	4,158,391	26.0

Report Generated: 04/20/20

SANDAG

Vehicle Miles of Travel Report

Scenario ID **989** **Fox Farm Follow Up - 2012 - North County Cities**

VMT per Resident

	Scenario ID	Residents	Total Trips	Person Miles of Travel	Vehicle Miles of Travel	VMT per Resident
Regionwide	989	3,129,417	11,211,651	73,624,387	54,858,289	17.5
North County Cities	989	731,710	2,641,577	16,785,820	12,639,014	17.3

VMT per Employee

	Scenario ID	Employees	Total Trips	Person Miles of Travel	Vehicle Miles of Travel	VMT per Employee
Regionwide	989	1,491,487	5,238,830	43,831,152	38,461,147	25.8
North County Cities	989	324,870	1,185,554	9,610,765	8,314,783	25.6

Report Generated: 04/20/20

SANDAG

Vehicle Miles of Travel Report

Scenario ID **991** **Fox Farm Follow Up - 2020 - Coaster Cities**

VMT per Resident

	Scenario ID	Residents	Total Trips	Person Miles of Travel	Vehicle Miles of Travel	VMT per Resident
Regionwide	991	3,435,715	12,302,411	77,559,665	56,353,219	16.4
Coaster Cities	991	376,925	1,388,495	8,833,092	6,622,700	17.6
					5	

VMT per Employee

	Scenario ID	Employees	Total Trips	Person Miles of Travel	Vehicle Miles of Travel	VMT per Employee
Regionwide	991	1,444,771	4,995,914	41,235,140	35,989,589	24.9
Coaster Cities	991	156,191	571,619	4,529,232	3,871,128	24.8

Report Generated: 03/15/20



Vehicle Miles of Travel Report

Scenario ID **991** **Fox Farm Follow Up - 2020 - North County Cities**

VMT per Resident

	Scenario ID	Residents	Total Trips	Person Miles of Travel	Vehicle Miles of Travel	VMT per Resident
Regionwide	991	3,435,715	12,302,411	77,559,665	56,353,219	16.4
North County Cities	991	791,694	2,843,207	17,113,672	12,559,318	15.9

VMT per Employee

	Scenario ID	Employees	Total Trips	Person Miles of Travel	Vehicle Miles of Travel	VMT per Employee
Regionwide	991	1,444,771	4,995,914	41,235,140	35,989,589	24.9
North County Cities	991	310,186	1,115,093	8,799,093	7,544,024	24.3

Report Generated: 03/15/20



Vehicle Miles of Travel Report

Scenario ID **991** **Fox Farm - 2020 - TAZ 1445**

VMT per Resident

		Scenario ID	Residents	Total Trips	Person Miles of Travel	Vehicle Miles of Travel	VMT per Resident
Regionwide		991	3,435,715	12,302,411	77,559,665	56,353,219	16.4
Jurisdiction	Encinitas	991	62,923	236,032	1,569,109	1,191,850	18.9
CPA							
TAZ 1445		991	338	1,330	8,638	6,311	**18.7**

VMT per Employee

		Scenario ID	Employees	Total Trips	Person Miles of Travel	Vehicle Miles of Travel	VMT per Employee
Regionwide		991	1,444,771	4,995,914	41,235,140	35,989,589	24.9
Jurisdiction	Encinitas	991	26,102	96,085	828,074	715,133	27.4
CPA							
TAZ 1445		991	130	477	4,287	3,587	**27.6**

Report Generated: 11/05/19



Appendix D
CAPCOA Fact Sheets

3.1.3 Increase Diversity of Urban and Suburban Developments (Mixed Use)

Range of Effectiveness: 9-30% vehicle miles traveled (VMT) reduction and therefore 9-30% reduction in GHG emissions.

Measure Description:

Having different types of land uses near one another can decrease VMT since trips between land use types are shorter and may be accommodated by non-auto modes of transport. For example when residential areas are in the same neighborhood as retail and office buildings, a resident does not need to travel outside of the neighborhood to meet his/her trip needs. A description of diverse uses for urban and suburban areas is provided below.

Urban:

The urban project will be predominantly characterized by properties on which various uses, such as office, commercial, institutional, and residential, are combined in a single building or on a single site in an integrated development project with functional interrelationships and a coherent physical design. The mixed-use development should encourage walking and other non-auto modes of transport from residential to office/commercial/institutional locations (and vice versa). The residential units should be within ¼-mile of parks, schools, or other civic uses. The project should minimize the need for external trips by including services/facilities for day care, banking/ATM, restaurants, vehicle refueling, and shopping.

Suburban:

The suburban project will have at least three of the following on site and/or offsite within ¼-mile: Residential Development, Retail Development, Park, Open Space, or Office. The mixed-use development should encourage walking and other non-auto modes of transport from residential to office/commercial locations (and vice versa). The project should minimize the need for external trips by including services/facilities for day care, banking/ATM, restaurants, vehicle refueling, and shopping.

Measure Applicability:

- Urban and suburban context
- Negligible impact in a rural context (unless the project is a master-planned community)
- Appropriate for mixed-use projects

Baseline Method:

See introduction to transportation section for a discussion of how to estimate trip rates and VMT. The CO_2 emissions are calculated from VMT as follows:

$CO_2 = VMT \times EF_{running}$

Where:

VMT = vehicle miles traveled

$EF_{running}$ = emission factor for running emissions

Inputs:

The following information needs to be provided by the Project Applicant:

- Percentage of each land use type in the project (to calculate land use index)

Mitigation Method:

% VMT Reduction = Land Use * B [not to exceed 30%]

Where

Land Use = Percentage increase in land use index versus single use development = (land use index – 0.15)/0.15 (see Appendix C for detail)

Land use index = -a / ln(6) (from [2])

$$a = \sum_{i=1}^{6} a_i \times \ln(a_i)$$

a_i = building floor area of land use i / total square feet of area considered

- a_1 = single family residential
- a_2 = multifamily residential
- a_3 = commercial
- a_4 = industrial
- a_5 = institutional
- a_6 = park

if land use is not present and a_i is equal to 0, set a_i equal to 0.01

B = elasticity of VMT with respect to land use index (0.09 from [1])

not to exceed 500% increase

Assumptions:

Data based upon the following references:

[1] Ewing, R., and Cervero, R., "Travel and the Built Environment - A Meta-Analysis." *Journal of the American Planning Association*, <to be published> (2010). Table 4.

[2] Song, Y., and Knaap, G., "Measuring the effects of mixed land uses on housing values." *Regional Science and Urban Economics 34 (2004) 663-680.* (p. 669) http://urban.csuohio.edu/~sugie/papers/RSUE/RSUE2005_Measuring%20the%20effects%20of%20mixed%20land%20use.pdf

Emission Reduction Ranges and Variables:

Pollutant	Category Emissions Reductions[36]
CO_2e	9-30% of running
PM	9-30% of running
CO	9-30% of running
NOx	9-30% of running
SO_2	9-30% of running
ROG	5.4-18% of total

Discussion:

In the above calculation, a land use index of 0.15 is used as a baseline representing a development with a single land use (see Appendix C for calculations).

There are two separate maxima noted in the fact sheet: a cap of 500% on the allowable percentage increase of land use index (variable A) and a cap of 30% on % VMT reduction. The rationale for the 500% cap is that there are diminishing returns to any change in environment. For example, it is reasonably doubtful that increasing the land use index by a factor of six instead of five would produce any additional change in travel behavior. The purpose for the 30% cap is to limit the influence of any single environmental factor (such as diversity). This emphasizes that community designs that implement multiple land use strategies (such as density, design, diversity, etc.) will show more of a reduction than relying on improvements from a single land use factor.

[36] The percentage reduction reflects emission reductions from running emissions. The actual value will be less than this when starting and evaporative emissions are factored into the analysis. ROG emissions have been adjusted to reflect a ratio of 40% evaporative and 60% exhaust emissions based on a statewide EMFAC run of all vehicles.

Example:

Sample calculations are provided below:

90% single family homes, 10% commercial

- Land use index = -[0.9*ln(0.9)+ 0.1*ln(0.1)+ 4*0.01*ln(0.01)] / ln(6) = 0.3
- Low Range % VMT Reduction = (0.3 – 0.15)/0.15 *0.09 = 9%

1/6 single family, 1/6 multi-family, 1/6 commercial, 1/6 industrial, 1/6 institutional, 1/6 parks

- Land use index = -[6*0.17*ln(0.17)] / ln(6) = 1
- High Range % VMT Reduction (land use index = 1)
- Land use = (1-0.15)/0.15 = 5.6 or 566%. Since this is greater than 500%, set to 500%.
- % VMT Reduction = (5 x 0.09) = 0.45 or 45%. Since this is greater than 30%, set to 30%.

Preferred Literature:

- -0.09 = elasticity of VMT with respect to land use index

The land use (or entropy) index measurement looks at the mix of land uses of a development. An index of 0 indicates a single land use while 1 indicates a full mix of uses. Ewing's [1] synthesis looked at a total of 10 studies, where none controlled for self-selection[37]. The weighted average elasticity of VMT with respect to the land use mix index is -0.09. The methodology for calculating the land use index is described in Song and Knaap [2].

Alternative Literature:

- Vehicle trip reduction = [1 - (ABS(1.5*h-e) / (1.5*h+e)) - 0.25] / 0.25*0.03

Where :
h = study area housing units, and
e = study area employment.

Nelson\Nygaard's report [3] describes a calculation adapted from Criterion and Fehr & Peers [4]. The formula assumes an "ideal" housing balance of 1.5 jobs per household and a baseline diversity of 0.25. The maximum trip reduction with this method is 9%.

[37] Self selection occurs when residents or employers that favor travel by non-auto modes choose locations where this type of travel is possible. They are therefore more inclined to take advantage of the available options than a typical resident or employee might otherwise be.

Alternative Literature References:

[3] Nelson\Nygaard, 2005. Crediting Low-Traffic Developments (p.12). http://www.montgomeryplanning.org/transportation/documents/TripGenerationAnalysisUsingURBEMIS.pdf

[4] Criteron Planner/Engineers and Fehr & Peers Associates (2001). Index 4D Method. *A Quick-Response Method of Estimating Travel Impacts from Land-Use Changes*. Technical Memorandum prepared for US EPA, October 2001.

Other Literature Reviewed:

None

3.1.6 Integrate Affordable and Below Market Rate Housing

Range of Effectiveness: 0.04 – 1.20% vehicle miles traveled (VMT) reduction and therefore 0.04-1.20% reduction in GHG emissions.

Measure Description:

Income has a statistically significant effect on the probability that a commuter will take transit or walk to work [4]. BMR housing provides greater opportunity for lower income families to live closer to jobs centers and achieve jobs/housing match near transit. It also addresses to some degree the risk that new transit oriented development would displace lower income families. This strategy potentially encourages building a greater percentage of smaller units that allow a greater number of families to be accommodated on infill and transit-oriented development sites within a given building footprint and height limit. Lower income families tend to have lower levels of auto ownership, allowing buildings to be designed with less parking which, in some cases, represents the difference between a project being economically viable or not.

Residential development projects of five or more dwelling units will provide a deed-restricted low-income housing component on-site.

Measure Applicability:

- Urban and suburban context
- Negligible impact in a rural context unless transit availability and proximity to jobs/services are existing characteristics
- Appropriate for residential and mixed-use projects

Baseline Method:

See introduction to transportation section for a discussion of how to estimate trip rates and VMT. The CO_2 emissions are calculated from VMT as follows:

$$CO_2 = VMT \times EF_{running}$$

Where:

VMT = vehicle miles traveled

$EF_{running}$ = emission factor for running emissions

Inputs:

The following information needs to be provided by the Project Applicant:

- Percentage of units in project that are deed-restricted BMR housing

Mitigation Method:

% VMT Reduction = 4% * Percentage of units in project that are deed-restricted BMR housing [1]

Assumptions:

Data based upon the following references:

[1] Nelson\Nygaard, 2005. Crediting Low-Traffic Developments (p.15). http://www.montgomeryplanning.org/transportation/documents/TripGenerationAnalysisUsingURBEMIS.pdf

Criteron Planner/Engineers and Fehr & Peers Associates (2001). Index 4D Method. *A Quick-Response Method of Estimating Travel Impacts from Land-Use Changes*. Technical Memorandum prepared for US EPA, October 2001.

Holtzclaw, John; Clear, Robert; Dittmar, Hank; Goldstein, David; and Haas, Peter (2002), "Location Efficiency: Neighborhood and Socio-Economic Characteristics Determine Auto Ownership and Use – Studies in Chicago, Los Angeles and San Francisco", *Transportation Planning and Technology*, 25 (1): 1-27.

All trips affected are assumed average trip lengths to convert from percentage vehicle trip reduction to VMT reduction (%VT = %VMT)

Emission Reduction Ranges and Variables:

Pollutant	Category Emissions Reductions[42]
CO_2e	0.04 – 1.20% of running
PM	0.04 – 1.20% of running
CO	0.04 – 1.20% of running
NOx	0.04 – 1.20% of running
SO_2	0.04 – 1.20% of running
ROG	0.024 – 0.72% of total

Discussion:

At a low range, 1% BMR housing is assumed. At a medium range, 15% is assumed (based on the requirements of the San Francisco BMR Program[5]). At a high range, the San Francisco program is doubled to reach 30% BMR. Higher percentages of BMR are possible, though not discussed in the literature or calculated.

[42] The percentage reduction reflects emission reductions from running emissions. The actual value will be less than this when starting and evaporative emissions are factored into the analysis. ROG emissions have been adjusted to reflect a ratio of 40% evaporative and 60% exhaust emissions based on a statewide EMFAC run of all vehicles.

Example:

Sample calculations are provided below:

- Low Range % VMT Reduction = 4% * 1% = 0.04%
- High Range % VMT Reduction = 4% * 30% = 1.20%

Preferred Literature:

Nelson\Nygaard [1] provides a 4% reduction in vehicle trips for each deed-restricted BMR unit. This is calculated from Holtzclaw [3], with the following assumptions: 12,000 average annual VMT per vehicle, $33,000 median per capita income (2002 figures per CA State Department of Finance), and average income in BMR units 25% below median. With a coefficient of -0.0565 (estimate for VMT/vehicle as a function of $/capita) from [3], the VMT reduction is 0.0565*33,000*0.25/12,000 = 4%.

Alternative Literature:

- 50% greater transit school trips than higher income households

Fehr & Peers [6] developed Direct Ridership Models to predict the Bay Area Rapid Transit (BART) ridership activity. One of the objectives of this assessment was to understand the land use and system access factors that influence commute period versus off-peak travel on BART. The analysis focused on the Metropolitan Transportation Commission 2000 Bay Area Travel Survey [7], using the data on household travel behavior to extrapolate relationships between household characteristics and BART mode choice. The study found that regardless of distance from BART, lower income households generate at least 50% higher BART use for school trips than higher income households. More research would be needed to provide more applicable information regarding other types of transit throughout the state.

Other Literature Reviewed:

[4] Bento, Antonio M., Maureen L. Cropper, Ahmed Mushfiq Mobarak, and Katja Vinha. 2005. "The Effects of Urban Spatial Structure on Travel Demand in the United States." *The Review of Economics and Statistics* 87,3: 466-478. (cited in Measure Description section)

[5] San Francisco BMR Program: http://www.ci.sf.ca.us/site/moh_page.asp?id=48083 (p.1) (cited in Discussion section).

[6] Fehr & Peers. *Access BART*. 2006.

[7] BATS. 2000. 2000 Bay Area Travel Survey.

3.2 Neighborhood/Site Enhancements

3.2.1 Provide Pedestrian Network Improvements

Range of Effectiveness: 0 - 2% vehicle miles traveled (VMT) reduction and therefore 0 - 2% reduction in GHG emissions.

Measure Description:

Providing a pedestrian access network to link areas of the Project site encourages people to walk instead of drive. This mode shift results in people driving less and thus a reduction in VMT. The project will provide a pedestrian access network that internally links all uses and connects to all existing or planned external streets and pedestrian facilities contiguous with the project site. The project will minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, landscaping, and slopes that impede pedestrian circulation will be eliminated.

Measure Applicability:

- Urban, suburban, and rural context
- Appropriate for residential, retail, office, industrial and mixed-use projects
- Reduction benefit only occurs if the project has both pedestrian network improvements on site and connections to the larger off-site network.

Baseline Method:

See introduction to transportation section for a discussion of how to estimate trip rates and VMT. The CO_2 emissions are calculated from VMT as follows:

$$CO_2 = VMT \times EF_{running}$$

Where:

VMT = vehicle miles traveled

$EF_{running}$ = emission factor for running emissions

Inputs:

The project applicant must provide information regarding pedestrian access and connectivity within the project and to/from off-site destinations.

Mitigation Method:

Estimated VMT Reduction	Extent of Pedestrian Accommodations	Context
2%	Within Project Site and Connecting Off-Site	Urban/Suburban
1%	Within Project Site	Urban/Suburban
< 1%	Within Project Site and Connecting Off-Site	Rural

Assumptions:

Data based upon the following references:

- Center for Clean Air Policy (CCAP) Transportation Emission Guidebook. http://www.ccap.org/safe/guidebook/guide_complete.html (accessed March 2010)
- 1000 Friends of Oregon (1997) "Making the Connections: A Summary of the LUTRAQ Project" (p. 16): http://www.onethousandfriendsoforegon.org/resources/lut_vol7.html

Emission Reduction Ranges and Variables:

Pollutant	Category Emissions Reductions[45]
CO_2e	0 - 2% of running
PM	0 - 2% of running
CO	0 - 2% of running
NOx	0 - 2% of running
SO_2	0 - 2% of running
ROG	0 – 1.2% of total

Discussion:

As detailed in the preferred literature section below, the lower range of 1 – 2% VMT reduction was pulled from the literature to provide a conservative estimate of reduction potential. The literature does not speak directly to a rural context, but an assumption was made that the benefits will likely be lower than a suburban/urban context.

Example:

N/A – calculations are not needed.

Preferred Literature:

[45] The percentage reduction reflects emission reductions from running emissions. The actual value will be less than this when starting and evaporative emissions are factored into the analysis. ROG emissions have been adjusted to reflect a ratio of 40% evaporative and 60% exhaust emissions based on a statewide EMFAC run of all vehicles.

- 1 - 2% reduction in VMT

The Center for Clean Air Policy (CCAP) attributes a 1% reduction in VMT from pedestrian-oriented design assuming this creates a 5% decrease in automobile mode share (e.g. auto split shifts from 95% to 90%). This mode split is based on the Portland Regional Land Use Transportation and Air Quality (LUTRAQ) project. The LUTRAQ analysis also provides the high end of 10% reduction in VMT. This 10% assumes the following features:

– Compact, mixed-use communities
– Interconnected street network
– Narrower roadways and shorter block lengths
– Sidewalks
– Accessibility to transit and transit shelters
– Traffic calming measures and street trees
– Parks and public spaces

Other strategies (development density, diversity, design, transit accessibility, traffic calming) are intended to account for the effects of many of the measures in the above list. Therefore, the assumed effectiveness of the Pedestrian Network measure should utilize the lower end of the 1 - 10% reduction range. If the pedestrian improvements are being combined with a significant number of the companion strategies, trip reductions for those strategies should be applied as well, based on the values given specifically for those strategies in other sections of this report. Based upon these findings, and drawing upon recommendations presented in the alternate literature below, the recommended VMT reduction attributable to pedestrian network improvements, above and beyond the benefits of other measures in the above bullet list, should be 1% for comprehensive pedestrian accommodations within the development plan or project itself, or 2% for comprehensive internal accommodations and external accommodations connecting to off-site destinations.

Alternative Literature:

Alternate:

- Walking is three times more common with enhanced pedestrian infrastructure
- 58% increase in non-auto mode share for work trips

The Nelson\Nygaard [1] report for the City of Santa Monica Land Use and Circulation Element EIR summarized studies looking at pedestrian environments. These studies have found a direct connection between non-auto forms of travel and a high quality pedestrian environment. Walking is three times more common with communities that have pedestrian friendly streets compared to less pedestrian friendly communities. Non-auto mode share for work trips is 49% in a pedestrian friendly community, compared to 31% in an auto-oriented community. Non-auto mode share for non-work trips is 15%, compared to 4% in an auto-oriented community. However, these effects also depend upon other aspects of the pedestrian friendliness being present, which are accounted for separately in this report through land use strategy mitigation measures such as density and urban design.

Alternate:

- 0.5% - 2.0% reduction in VMT

The Sacramento Metropolitan Air Quality Management District (SMAQMD) Recommended Guidance for Land Use Emission Reductions [2] attributes 1% reduction for a project connecting to *existing* external streets and pedestrian facilities. A 0.5% reduction is attributed to connecting to *planned* external streets and pedestrian facilities (which must be included in a pedestrian master plan or equivalent). Minimizing pedestrian barriers attribute an additional 1% reduction in VMT. These recommendations are generally in line with the recommended discounts derived from the preferred literature above.

Preferred and Alternative Literature Notes:

[1] Nelson\Nygaard, 2010. City of Santa Monica Land Use and Circulation Element EIR Report, Appendix – Santa Monica Luce Trip Reduction Impacts Analysis (p.401). http://www.shapethefuture2025.net/

Nelson\Nygaard looked at the following studies: Anne Vernez Moudon, Paul Hess, Mary Catherine Snyder and Kiril Stanilov (2003), Effects of Site Design on Pedestrian Travel in Mixed Use, Medium-Density Environments, http://www.wsdot.wa.gov/research/reports/fullreports/432.1.pdf; Robert Cervero and Carolyn Radisch (1995), Travel Choices in Pedestrian Versus Automobile Oriented Neighborhoods, http://www.uctc.net/papers/281.pdf;

[2] Sacramento Metropolitan Air Quality Management District (SMAQMD) Recommended Guidance for Land Use Emission Reductions. (p. 11) http://www.airquality.org/ceqa/GuidanceLUEmissionReductions.pdf

Other Literature Reviewed:

None

3.2.3 Implement a Neighborhood Electric Vehicle (NEV) Network

Range of Effectiveness: 0.5-12.7% vehicle miles traveled (VMT) reduction since Neighborhood Electric Vehicles (NEVs) would result in a mode shift and therefore reduce the traditional vehicle VMT and GHG emissions[47]. Range depends on the available NEV network and support facilities, NEV ownership levels, and the degree of shift from traditional

Measure Description:

The project will create local "light" vehicle networks, such as NEV networks. NEVs are classified in the California Vehicle Code as a “low speed vehicle”. They are electric powered and must conform to applicable federal automobile safety standards. NEVs offer an alternative to traditional vehicle trips and can legally be used on roadways with speed limits of 35 MPH or less (unless specifically restricted). They are ideal for short trips up to 30 miles in length. To create an NEV network, the project will implement the necessary infrastructure, including NEV parking, charging facilities, striping, signage, and educational tools. NEV routes will be implemented throughout the project and will double as bicycle routes.

Measure Applicability:

- Urban, suburban, and rural context
- Small citywide or large multi-use developments
- Appropriate for mixed-use projects

Baseline Method:

See introduction to transportation section for a discussion of how to estimate trip rates and VMT. The CO_2 emissions are calculated from VMT as follows:

$$CO_2 = VMT \times EF_{running}$$

Where:

VMT = vehicle miles traveled

$EF_{running}$ = emission factor for running emissions

[47] Transit vehicles may also result in increases in emissions that are associated with electricity production or fuel use. The Project Applicant should consider these potential additional emissions when estimating mitigation for these measures.

Inputs:

The following information needs to be provided by the Project Applicant:

- low vs. high penetration

Mitigation Method:

$$\% \text{ VMT reduction} = \text{Pop} * \text{Number} * \text{NEV}$$

Where

Penetration = Number of NEVs per household (0.04 to 1.0 from [1])
NEV = VMT reduction rate per household (12.7% from [2])

Assumptions:

Data based upon the following reference:

[1] City of Lincoln, MHM Engineers & Surveyors, *Neighborhood Electric Vehicle Transportation Program Final Report*, Issued 04/05/05
[2] City of Lincoln, *A Report to the California Legislature as required by Assembly Bill 2353, Neighborhood Electric Vehicle Transportation Plan Evaluation,* January 1, 2008.

Emission Reduction Ranges and Variables:

Pollutant	Category Emissions Reductions[48]
CO_2e	0.5 – 12.7% of running
PM	0.5 – 12.7% of running
CO	0.5 – 12.7%of running
NOx	0.5 – 12.7% of running
SO_2	0.5 – 12.7% of running
ROG	0.3 – 7.6% of total

Discussion:

The estimated number of NEVs per household may vary based on what the project estimates as a penetration rate for implementing an NEV network. Adjust according to project characteristics. The estimated reduction in VMT is for non-NEV miles traveled. The calculations below assume that NEV miles traveled replace regular vehicle travel.

[48] The percentage reduction reflects emission reductions from running emissions. The actual value will be less than this when starting and evaporative emissions are factored into the analysis. ROG emissions have been adjusted to reflect a ratio of 40% evaporative and 60% exhaust emissions based on a statewide EMFAC run of all vehicles.

This may not be the case and the project should consider applying an appropriate discount rate on what percentage of VMT is actually replaced by NEV travel..

Example:

Sample calculations are provided below:

- Low Range % VMT Reduction (low penetration) = 0.04 * 12.7% = 0.5%
- High Range % VMT Reduction (high penetration) = 1.0 * 12.7% = 12.7%

Preferred Literature:

- 12.7% reduction in VMT per household
- Penetration rates: 0.04 to 1 NEV / household

The NEV Transportation Program plans to implement the following strategies: charging facilities, striping, signage, parking, education on NEV safety, and NEV/bicycle lines throughout the community. . One estimate of current NEV ownership reported roughly 600 NEVs in the city of Lincoln in 2008[49]. With current estimated households of ~13,500[50], a low estimate of NEV penetration would be 0.04 NEV per household. A high NEV penetration can be estimated at 1 NEV per household. The 2007 survey of NEV users in Lincoln revealed an average use of about 3,500 miles per year [2]. With an estimated annual 27,500 VMT/household[51], this results in a 12.7% reduction in VMT per household.

Alternative Literature:

- 0.5% VMT reduction for neighborhoods with internal NEV connections
- 1% VMT reduction for internal and external connections to surrounding neighborhoods
- 1.5% VMT reduction for internal NEV connections and connections to other existing NEV networks serving all other types of uses.

The Sacramento Metropolitan Air Quality Management District (SMAQMD) Recommended Guidance for Land Use Emission Reductions notes that current studies show NEVs do not replace gas-fueled vehicles as the primary vehicle. For the purpose

[49] Lincoln, California: A NEV-Friendly Community, Bennett Engineering, the City of Lincoln, and LincolnNEV, August 28, 2008 - http://electrickmotorsports.com/news.php

[50] SACOG Housing Estimates Statistics (http://www.sacog.org/about/advocacy/pdf/fact-sheets/HousingStats.pdf). Linearly interpolated 2008 household numbers between 2005 and 2035 projections.

[51] SACOG SACSim forecasts for VMT per household at 75.4 daily VMT per household * 365 days = 27521 annual VMT per household

of providing incentives for developers to promote NEV use, a project will receive the above listed VMT reductions for implementation.

Alternative Literature Reference:

[1] Sacramento Metropolitan Air Quality Management District (SMAQMD) Recommended Guidance for Land Use Emission Reductions. (p. 21) http://www.airquality.org/ceqa/GuidanceLUEmissionReductions.pdf

Other Literature Reviewed:

None

3.2.8 Provide Electric Vehicle Parking

Range of Effectiveness: Grouped strategy. [See SDT-3]

Measure Description:

This project will implement accessible electric vehicle parking. The project will provide conductive/inductive electric vehicle charging stations and signage prohibiting parking for non-electric vehicles. Refer to Neighborhood Electric Vehicle Network (SDT-3) strategy for effectiveness ranges in this category. The benefits of Electric Vehicle Parking may be quantified when grouped with the use of electric vehicles and or Neighborhood Electric Vehicle Network.

Measure Applicability:

- Urban or suburban contexts
- Appropriate for residential, retail, office, mixed use, and industrial projects

Alternative Literature:

No literature was identified that specifically looks at the quantitative impact of implementing electric vehicle parking.

Alternative Literature References:

None

Other Literature Reviewed:

None

3.2.9 Dedicate Land for Bike Trails

Range of Effectiveness: Grouped strategy. [See LUT-9]

Measure Description:

Larger projects may be required to provide for, contribute to, or dedicate land for the provision of off-site bicycle trails linking the project to designated bicycle commuting routes in accordance with an adopted citywide or countywide bikeway plan.

Refer to Improve Design of Development (LUT-9**)** strategy for ranges of effectiveness in this category. The benefits of Land Dedication for Bike Trails have not been quantified and should be grouped with the Improve Design of Development strategy to strengthen street network characteristics and improve connectivity to off-site bicycle networks.

Measure Applicability:

- Urban, suburban, or rural contexts
- Appropriate for large residential, retail, office, mixed use, and industrial projects

Alternative Literature:

No literature was identified that specifically looks at the quantitative impact of implementing land dedication for bike trails.

Alternative Literature References:

None

Other Literature Reviewed:

None

3.4.3 Provide Ride-Sharing Programs

Range of Effectiveness: 1 – 15% commute vehicle miles traveled (VMT) reduction and therefore 1 - 15% reduction in commute trip GHG emissions.

Measure Description:

Increasing the vehicle occupancy by ride sharing will result in fewer cars driving the same trip, and thus a decrease in VMT. The project will include a ride-sharing program as well as a permanent transportation management association membership and funding requirement. Funding may be provided by Community Facilities, District, or County Service Area, or other non-revocable funding mechanism. The project will promote ride-sharing programs through a multi-faceted approach such as:

- Designating a certain percentage of parking spaces for ride sharing vehicles
- Designating adequate passenger loading and unloading and waiting areas for ride-sharing vehicles
- Providing a web site or message board for coordinating rides

Measure Applicability:

- Urban and suburban context
- Negligible impact in many rural contexts, but can be effective when a large employer in a rural area draws from a workforce in an urban or suburban area, such as when a major employer moves from an urban location to a rural location.
- Appropriate for residential, retail, office, industrial, and mixed-use projects

Baseline Method:

See introduction to transportation section for a discussion of how to estimate trip rates and VMT. The CO_2 emissions are calculated from VMT as follows:

$$CO_2 = VMT \times EF_{running}$$

Where:

VMT = vehicle miles traveled

$EF_{running}$ = emission factor for running emissions

Inputs:

The following information needs to be provided by the Project Applicant:

- Percentage of employees eligible

- Location of project site: low density suburb, suburban center, or urban location

Mitigation Method:

% VMT Reduction = Commute * Employee

Where

Commute = % reduction in commute VMT (from [1])
Employee = % employees eligible

Detail:

- Commute: 5% (low density suburb), 10% (suburban center), 15% (urban) annual reduction in commute VMT (from [1])

Assumptions:

Data based upon the following references:

[1] VTPI. *TDM Encyclopedia*. http://www.vtpi.org/tdm/tdm34.htm; Accessed 3/5/2010.

Emission Reduction Ranges and Variables:

Pollutant	Category Emissions Reductions[58]
CO_2e	1 – 15% of running
PM	1 – 15% of running
CO	1 – 15% of running
NOx	1 – 15% of running
SO_2	1 – 15% of running
ROG	0.6 – 9% of total

Discussion:

This strategy is often part of Commute Trip Reduction (CTR) Program, another strategy documented separately (see TRT-1 and TRT-2). The Project Applicant should take care not to double count the impacts.

Example:

Sample calculations are provided below:

[58] The percentage reduction reflects emission reductions from running emissions. The actual value will be less than this when starting and evaporative emissions are factored into the analysis. ROG emissions have been adjusted to reflect a ratio of 40% evaporative and 60% exhaust emissions based on a statewide EMFAC run of all vehicles.

- Low Range % VMT Reduction (low density suburb and 20% eligible) = 5% * 20% = 1%
- High Range % VMT Reduction (urban and 100% eligible) = 15% * 1 = 15%

Preferred Literature:

- 5 – 15% reduction of commute VMT

The *Transportation Demand Management (TDM) Encyclopedia* notes that because rideshare passengers tend to have relatively long commutes, mileage reductions can be relatively large with rideshare. If ridesharing reduces 5% of commute trips it may reduce 10% of vehicle miles because the trips that are reduced are twice as long as average. Rideshare programs can reduce up to 8.3% of commute VMT, up to 3.6% of total regional VMT, and up to 1.8% of regional vehicle trips (Apogee, 1994; TDM Resource Center, 1996). Another study notes that ridesharing programs typically attract 5-15% of commute trips if they offer only information and encouragement, and 10-30% if they also offer financial incentives such as parking cash out or vanpool subsidies (York and Fabricatore, 2001).

Alternative Literature:

- Up to 1% reduction in VMT (if combined with two other strategies)

Per the Nelson\Nygaard report [2], ride-sharing would fall under the category of a minor TDM program strategy. The report allows a 1% reduction in VMT for projects with at least three minor strategies.

Alternative Literature References:

[2] Nelson\Nygaard, 2005. *Crediting Low-Traffic Developments* (p.12). http://www.montgomeryplanning.org/transportation/documents/TripGenerationAnalysisUsingURBEMIS.pdf

Criteron Planner/Engineers and Fehr & Peers Associates (2001). Index 4D Method. *A Quick-Response Method of Estimating Travel Impacts from Land-Use Changes*. Technical Memorandum prepared for US EPA, October 2001.

Other Literature Reviewed:

None

3.4.4 Implement Subsidized or Discounted Transit Program

Range of Effectiveness: 0.3 – 20.0% commute vehicle miles traveled (VMT) reduction and therefore a 0.3 – 20.0% reduction in commute trip GHG emissions.

Measure Description:

This project will provide subsidized/discounted daily or monthly public transit passes. The project may also provide free transfers between all shuttles and transit to participants. These passes can be partially or wholly subsidized by the employer, school, or development. Many entities use revenue from parking to offset the cost of such a project.

Measure Applicability:

- Urban and suburban context
- Negligible in a rural context
- Appropriate for residential, retail, office, industrial, and mixed-use projects

Baseline Method:

See introduction to transportation section for a discussion of how to estimate trip rates and VMT. The CO_2 emissions are calculated from VMT as follows:

$$CO_2 = VMT \times EF_{running}$$

Where:

VMT = vehicle miles traveled

$EF_{running}$ = emission factor for running emissions

Inputs:

The following information needs to be provided by the Project Applicant:

- Percentage of project employees eligible
- Transit subsidy amount
- Location of project site: low density suburb, suburban center, or urban location

Mitigation Method:

$$\% \text{ VMT Reduction} = A * B * C$$

Where

A = % reduction in commute vehicle trips (VT) (from [1])

B = % employees eligible

C = Adjustment from commute VT to commute VMT

Detail:

- A:

	Daily Transit Subsidy			
	$0.75	$1.49	$2.98	$5.96
Worksite Setting	**% Reduction in Commute VT**			
Low density suburb	**1.5%**	**3.3%**	**7.9%**	**20.0%***
Suburban center	**3.4%**	**7.3%**	**16.4%**	**20.0%***
Urban location	**6.2%**	**12.9%**	**20.0%***	**20.0%***
* Discounts greater than 20% will be capped, as they exceed levels recommended by TCRP 95 Draft Chapter 19 and other literature.				

- C: 1.0 (see Appendix C for detail)

Assumptions:

Data based upon the following references:

[1] Nelson\Nygaard, 2010. *City of Santa Monica Land Use and Circulation Element EIR Report, Appendix – Santa Monica Luce Trip Reduction Impacts Analysis* (p.401).

[2] Nelson\Nygaard used the following literature sources: VTPI, Todd Litman, *Transportation Elasticities, http://www.vtpi.org/elasticities.pdf.* Comsis Corporation (1993), *Implementing Effective Travel Demand Management Measures: Inventory of Measures and Synthesis of Experience*, USDOT and Institute of Transportation Engineers (www.ite.org); www.bts.gov/ntl/DOCS/474.html.

Emission Reduction Ranges and Variables:

Pollutant	Category Emissions Reductions[59]
CO_2e	0.3 - 20% of running
PM	0.3 - 20% of running
CO	0.3 - 20% of running
NOx	0.3 - 20% of running
SO_2	0.3 - 20% of running
ROG	0. 18 - 12% of total

[59] The percentage reduction reflects emission reductions from running emissions. The actual value will be less than this when starting and evaporative emissions are factored into the analysis. ROG emissions have been adjusted to reflect a ratio of 40% evaporative and 60% exhaust emissions based on a statewide EMFAC run of all vehicles.

Discussion:

This strategy is often part of a Commute Trip Reduction (CTR), another strategy documented separately (see TRT-1 and TRT-2). The Project Applicant should take care not to double count the impacts.

The literature evaluates this strategy in relation to the employer, but keep in mind that this strategy can also be implemented by a school or the development as a whole.

Example:

Sample calculations are provided below:

- Low Range % VMT Reduction ($0.75, low density suburb, 20% eligible) = 1.5% * 20% = 0.3%
- High Range % VMT Reduction ($5.96, urban, 100% eligible) = 20% * 100% = 20%

Preferred Literature:

Commute Vehicle Trip Reduction	**Daily Transit Subsidy**			
Worksite Setting	**$0.75**	**$1.49**	**$2.98**	**$5.96**
Low density suburb, rideshare oriented	0.1%	0.2%	0.6%	1.9%
Low density suburb, mode neutral	1.5%	3.3%	7.9%	21.7%*
Low density suburb, transit oriented	2.0%	4.2%	9.9%	23.2%*
Activity center, rideshare oriented	1.1%	2.4%	5.8%	16.5%
Activity center, mode neutral	3.4%	7.3%	16.4%	38.7%*
Activity center, transit oriented	5.2%	10.9%	23.5%*	49.7%*
Regional CBD/Corridor, rideshare oriented	2.2%	4.7%	10.9%	28.3%*
Regional CBD/Corridor, mode neutral	6.2%	12.9%	26.9%*	54.3%*
Regional CBD/Corridor, transit oriented	9.1%	18.1%	35.5%*	64.0%*

* Discounts greater than 20% will be capped, as they exceed levels recommended by *TCRP 95 Draft Chapter 19* and other literature.

Nelson\Nygaard (2010) updated a commute trip reduction table from VTPI Transportation Elasticities to account for inflation since the data was compiled. Data regarding commute vehicle trip reductions was originally from a study conducted by Comsis Corporation and the Institute of Transportation Engineers (ITE).

Alternative Literature:

Alternate:

- 2.4-30.4% commute vehicle trip reduction (VTR)

TCRP 95 Draft Chapter 19 [2] indicates transit subsidies in areas with good transit and restricted parking have a commute VTR of 30.4%; good transit but free parking, a commute VTR of 7.6%; free parking and limited transit 2.4%. Programs with transit subsidies have an average commute VTR of 20.6% compared with an average commute VTR of 13.1% for sites with non-transit fare subsidies.

Alternate:

- 0.03-0.12% annual greenhouse gas (GHG) reduction

Moving Cooler [3] assumed price elasticities of -0.15, -0.2, and -0.3 for lower fares 25%, 33%, and 50%, respectively. *Moving Cooler* assumes average vehicle occupancy of 1.43 and a VMT/trip of 5.12.

Alternative Literature References:

[2] Pratt, Dick. Personal Communication Regarding the Draft of TCRP 95 Traveler Response to Transportation System Changes – Chapter 19 Employer and Institutional TDM Strategies.

[3] Cambridge Systematics. *Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions.* Technical Appendices. Prepared for the Urban Land Institute. (Table D.3) http://www.movingcooler.info/Library/Documents/Moving%20Cooler_Appendix%20B_Effectiveness_102209.pdf

Other Literature Reviewed:

None

3.4.7 Implement Commute Trip Reduction Marketing

Range of Effectiveness: 0.8 – 4.0% commute vehicle miles traveled (VMT) reduction and therefore 0.8 – 4.0% reduction in commute trip GHG emissions.

Measure Description:

The project will implement marketing strategies to reduce commute trips. Information sharing and marketing are important components to successful commute trip reduction strategies. Implementing commute trip reduction strategies without a complementary marketing strategy will result in lower VMT reductions. Marketing strategies may include:

- New employee orientation of trip reduction and alternative mode options
- Event promotions
- Publications

CTR marketing is often part of a CTR program, voluntary or mandatory. CTR marketing is discussed separately here to emphasis the importance of not only providing employees with the options and monetary incentives to use alternative forms of transportation, but to clearly and deliberately promote and educate employees of the various options. This will greatly improve the impact of the implemented trip reduction strategies.

Measure Applicability:

- Urban and suburban context
- Negligible in a rural context
- Appropriate for residential, retail, office, industrial and mixed-use projects

Baseline Method:

See introduction to transportation section for a discussion of how to estimate trip rates and VMT. The CO_2 emissions are calculated from VMT as follows:

$$CO_2 = VMT \times EF_{running}$$

Where:

VMT = vehicle miles traveled
$EF_{running}$ = emission factor for running emissions

Inputs:

The following information needs to be provided by the Project Applicant:

- Percentage of project employees eligible (i.e. percentage of employers choosing to participate)

Mitigation Method:

$$\% \text{ Commute VMT Reduction} = A * B * C$$

Where

A = % reduction in commute vehicle trips (from [1])

B = % employees eligible

C = Adjustment from commute VT to commute VMT

Detail:

- A: 4% (per [1])
- C: 1.0 (see Appendix C for detail)

Assumptions:

Data based upon the following references:

[1] Pratt, Dick. Personal communication regarding the *Draft of TCRP 95 Traveler Response to Transportation System Changes – Chapter 19 Employer and Institutional TDM Strategies.* Transit Cooperative Research Program.

Emission Reduction Ranges and Variables:

Pollutant	Category Emissions Reductions[61]
CO_2e	0.8 – 4.0% of running
PM	0.8 – 4.0% of running
CO	0.8 – 4.0% of running
NOx	0.8 – 4.0% of running
SO_2	0.8 – 4.0% of running
ROG	0.5 – 2.4% of total

[61] The percentage reduction reflects emission reductions from running emissions. The actual value will be less than this when starting and evaporative emissions are factored into the analysis. ROG emissions have been adjusted to reflect a ratio of 40% evaporative and 60% exhaust emissions based on a statewide EMFAC run of all vehicles.

Discussion:

The effectiveness of commute trip reduction marketing in reducing VMT depends on which commute reduction strategies are being promoted. The effectiveness levels provided below should only be applied if other programs are offered concurrently, and represent the total effectiveness of the full suite of measures.

This strategy is often part of a CTR Program, another strategy documented separately (see strategy T# E1). Take care not to double count the impacts.

Example:

Sample calculations are provided below:

- Low Range % VMT Reduction (20% eligible) = 4% * 20% = 0.8%
- High Range % VMT Reduction (100% eligible) = 4% * 100% = 4.0%

Preferred Literature:

- 4-5% commute vehicle trips reduced with full-scale employer support

TCRP 95 Draft Chapter 19 notes the average empirically-based estimate of reductions in vehicle trips for full-scale, site-specific employer support programs alone is 4-5%. This effectiveness assumes there are alternative commute modes available which have on-going employer support. For a program to receive credit for such outreach and marketing efforts, it should contain guarantees that the program will be maintained permanently, with promotional events delivered regularly and with routine performance monitoring.

Alternative Literature:

- 5-15% reduction in commute vehicle trips
- 3% increase in effectiveness of marketed transportation demand management (TDM) strategies

VTPI [2] notes that providing information on alternative travel modes by employers was one of the most important factors contributing to mode shifting. One study (Shadoff,1993) estimates that marketing increases the effectiveness of other TDM strategies by up to 3%. Given adequate resources, marketing programs may reduce vehicle trips by 5-15%. The 5 – 15% range comes from a variety of case studies across the world. U.S. specific case studies include: 9% reduction in vehicle trips with TravelSmart in Portland (12% reduction in VMT), 4-8% reduction in vehicle trips from four cities with individualized marketing pilot projects from the Federal Transit Administration (FTA). Averaged across the four pilot projects, there was a 6.75% reduction in VMT.

Alternative Literature References:

[2] VTPI, TDM Encyclopedia – TDM Marketing; http://www.vtpi.org/tdm/tdm23.htm; accessed 3/5/2010. Table 7 (citing FTA, 2006)

Other Literature Reviewed:

None

3.4.10 Implement a School Pool Program

Range of Effectiveness: 7.2 – 15.8% school vehicle miles traveled (VMT) Reduction and therefore 7.2 – 15.8% reduction in school trip GHG emissions.

Measure Description:

This project will create a ridesharing program for school children. Most school districts provide bussing services to public schools only. SchoolPool helps match parents to transport students to private schools, or to schools where students cannot walk or bike but do not meet the requirements for bussing.

Measure Applicability:

- Urban, suburban, and rural context
- Appropriate for residential and mixed-use projects

Baseline Method:

See introduction to transportation section for a discussion of how to estimate trip rates and VMT. The CO_2 emissions are calculated from VMT as follows:

$$CO_2 = VMT \times EF_{running}$$

Where:

VMT = vehicle miles traveled

$EF_{running}$ = emission factor for running emissions

Inputs:

The following information needs to be provided by the Project Applicant:

- Degree of implementation of SchoolPool Program(moderate to aggressive)

Mitigation Method:

$$\% \text{ VMT Reduction} = \text{Families} * B$$

Where

Families = % families that participate (from [1] and [2])

B = adjustments to convert from participation to daily VMT to annual school VMT

Detail:

- Families: 16% (moderate implementation), 35% (aggressive implementation), (from [1] and [2])
- B: 45% (see Appendix C for detail)

Assumptions:

Data based upon the following references:

[1] Transportation Demand Management Institute of the Association for Commuter Transportation. *TDM Case Studies and Commuter Testimonials*. Prepared for the US EPA. 1997. (p. 10, 36-38) http://www.epa.gov/OMS/stateresources/rellinks/docs/tdmcases.pdf

[2] Denver Regional Council of Governments (DRCOG). *Survey of Schoolpool Participants, April 2008.* http://www.drcog.org/index.cfm?page=SchoolPool. Obtained from Schoolpool Coordinator, Mia Bemelen.

Emission Reduction Ranges and Variables:

Pollutant	Category Emissions Reductions[64]
CO_2e	7.2 – 15.8% of running
PM	7.2 – 15.8% of running
CO	7.2 – 15.8% of running
NOx	7.2 – 15.8% of running
SO_2	7.2 – 15.8% of running
ROG	4.3 – 9.5% of total

Discussion:

This strategy reflects the findings from only one case study.

Example:

Sample calculations are provided below:

- Low Range % School VMT Reduction (moderate implementation) = 16% * 45% = 7.2%
- High Range % School VMT Reduction (aggressive implementation) = 35% * 45% = 15.8%

[64] The percentage reduction reflects emission reductions from running emissions. The actual value will be less than this when starting and evaporative emissions are factored into the analysis. ROG emissions have been adjusted to reflect a ratio of 40% evaporative and 60% exhaust emissions based on a statewide EMFAC run of all vehicles.

Preferred Literature:

- 7,711 – 18,659 daily VMT reduction

As presented in the TDM Case Studies [1] compilation, the SchoolPool program in Denver saved 18,659 VMT per day in 1995, compared with 7,711 daily in 1994 – a 142% increase. The Denver Regional Council of Governments (DRCOG) [2] enrolled approximately 7,000 families and 32 private schools in the program. The DRCOG staff surveyed a school or interested families to collect home location and schedules of the students. The survey also identified prospective drivers. DRCOG then used carpool-matching software and GIS to match families. These match lists were sent to the parents for them to form their own school pools. 16% of families in the database formed carpools. The average carpool carried 3.1 students.

The SchoolPool program is still in effect and surveys are conducted every few years to monitor the effectiveness of the program. The latest survey report received was in 2008. The report showed that the participant database had increased to over 10,000 families, an 18% increase from 2005. 29% of participants used the list to form a school carpool. This percentage was lower than 35% in 2005 but higher than prior to 2005, at 24%. The average number of families in each carpool ranged from 2.1 prior to 2005 to 2.8 in 2008. The average number of carpool days per week was roughly 4.7. The number of school weeks per year was 39. Per discussions with the Schoolpool Coordinator, a main factor of success was establishing a large database. This was achieved by having parents opt-out of the database versus opting-in.

Alternative Literature:

None

Alternative Literature References:

None

Other Literature Reviewed:

None

3.4.11 Provide Employer-Sponsored Vanpool/Shuttle

Range of Effectiveness: 0.3 – 13.4% commute vehicle miles traveled (VMT) reduction and therefore 0.3 – 13.4% reduction in commute trip GHG emissions.

Measure Description:

This project will implement an employer-sponsored vanpool or shuttle. A vanpool will usually service employees' commute to work while a shuttle will service nearby transit stations and surrounding commercial centers. Employer-sponsored vanpool programs entail an employer purchasing or leasing vans for employee use, and often subsidizing the cost of at least program administration, if not more. The driver usually receives personal use of the van, often for a mileage fee. Scheduling is within the employer's purview, and rider charges are normally set on the basis of vehicle and operating cost.

Measure Applicability:

- Urban, suburban, and rural context
- Appropriate for office, industrial, and mixed-use projects

Baseline Method:

See introduction to transportation section for a discussion of how to estimate trip rates and VMT. The CO_2 emissions are calculated from VMT as follows:

$$CO_2 = VMT \times EF_{running}$$

Where:

VMT = vehicle miles traveled
$EF_{running}$ = emission factor for running emissions

Inputs:

The following information needs to be provided by the Project Applicant:

- Percentage of employees eligible

Mitigation Method:

$$\% \text{ VMT Reduction} = A * B * C$$

Where

A = % shift in vanpool mode share of commute trips (from [1])

B = % employees eligible

C = adjustments from vanpool mode share to commute VMT

Detail:

- A: 2-20% annual reduction in vehicle mode share (*from [1]*)
  - Low range: low degree of implementation, smaller employers
  - High range: high degree of implementation, larger employers
- C: 0.67 (See Appendix C for detail)

Assumptions:

Data based upon the following references:

[1] TCRP Report 95. *Chapter 5: Vanpools and Buspools - Traveler Response to Transportation System Changes.* http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_95c5.pdf. (p.5-8)

Emission Reduction Ranges and Variables:

Pollutant	Category Emissions Reductions[65]
CO_2e	0.3 – 13.4% of running
PM	0.3 – 13.4% of running
CO	0.3 – 13.4% of running
NOx	0.3 – 13.4% of running
SO_2	0.3 – 13.4% of running
ROG	0.18 – 8.0% of total

Discussion:

Vanpools are generally more successful with the largest of employers, as large employee counts create the best opportunities for employees to find a suitable number of travel companions to form a vanpool. In the San Francisco Bay Area several large companies (such as Google, Apple, and Genentech) provide regional bus transportation for their employees. No specific studies of these large buspools were identified in the literature. However, the GenenBus serves as a key element of the overall commute trip reduction (CTR) program for Genentech, as discussed in the CTR Program – Required strategy.

This strategy is often part of a CTR Program, another strategy documented separately (see strategy T# E1). Take care not to double count the impacts.

Example:

Sample calculations are provided below:

[65] The percentage reduction reflects emission reductions from running emissions. The actual value will be less than this when starting and evaporative emissions are factored into the analysis. ROG emissions have been adjusted to reflect a ratio of 40% evaporative and 60% exhaust emissions based on a statewide EMFAC run of all vehicles.

- Low Range % VMT Reduction (low implementation/small employer, 20% eligible) = 2% * 20% * 0.67 = 0.3%
- High Range % VMT Reduction (high implementation/large employer, 100% eligible) = 20% * 100% * 0.67 = 13.4%

Preferred Literature:

- 2-20% vanpool mode share

TCRP Report 95 [1] notes that vanpools can capture 2 to 20% mode share. This range can be attributed to differences in programs, access to high-occupancy vehicle (HOV) lanes, and geographic range. The *TCRP Report* highlights a case study of the 3M Corporation, which with the implementation of a vanpooling program saw drive alone mode share decrease by 10 percentage points and vanpooling mode share increase to 7.8 percent. The *TCRP Report* notes most vanpools programs do best where one-way trip lengths exceed 20 miles, where work schedules are fixed and regular, where employer size is sufficient to allow matching of 5 to 12 people from the same residential area, where public transit is inadequate, and were some congestion or parking problems exist.

Alternative Literature:

In *TDM Case Studies* [2], a case study of Kaiser Permanente Hospital has shown their employer-sponsored shuttle service eliminated 380,100 miles per month, or nearly 4 million miles of travel per year, and four tons of smog precursors annually.

Alternative Literature References:

[2] Transportation Demand Management Institute of the Association for Commuter Transportation. *TDM Case Studies and Commuter Testimonials*. Prepared for the US EPA. 1997. http://www.epa.gov/OMS/stateresources/rellinks/docs/tdmcases.pdf

Other Literature Reviewed:

None

APPENDIX O-2 VEHICLE OPERATIONS AND QUEUING ANALYSIS

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Fox Point Farms

Draft Vehicle Operations and Queuing Analysis

August 2020

Prepared for

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ES.1 Project Setting

The Fox Point Farms project (Proposed Project) is located at the northwest corner of the intersection of Quail Gardens Drive and Leucadia Boulevard, within the City of Encinitas. The Proposed Project would redevelop the existing 18-acre flower mart with up-to with 197 apartment dwelling units, 53 condominium units (for a total of 250 units, consistent with the City's Housing Element), 3,500 square foot of quality restaurant, a 3,213 square foot farm stand, a 3,000 square foot nursery, and 5.5 acres of agricultural open space.

Trip generation rates for the Proposed Project were developed utilizing SANDAG's (*not so) Brief Guide to Vehicular Trip Generation* (SANDAG, April 2002). Trip generation calculation are provided in Chapter 3. The Proposed Project is anticipated to generate a net total of 1,690 daily trips, including 109 (14-in / 95-out) trips during the AM peak hour and 153 trips (119-in / 34-out) during the PM peak hour.

Proposed Project access will be provided via an existing driveway along Quail Gardens Drive with full access and function as a side-street stop-controlled intersection.

The following nine (9) roadway segments, ten (10) intersections, and two (2) freeway ramps were analyzed in the study:

Roadway Segments

1. Leucadia Boulevard, between I-5 NB Ramps and Urania Avenue
2. Leucadia Boulevard, between Urania Avenue and Saxony Road
3. Leucadia Boulevard, between Saxony Road and Sidonia Street
4. Leucadia Boulevard, between Sidonia Street and Quail Gardens Drive
5. Leucadia Boulevard, between Quail Gardens Drive and Garden View Road
6. Leucadia Boulevard, between Garden View Road and Town Center Place
7. Leucadia Boulevard, between Town Center Place and El Camino Real
8. Quail Gardens Drive, between Ranch Road and Project Driveway #1
9. Quail Gardens Drive, between Project Driveway #1 and Leucadia Boulevard

Intersections

1. I-5 Southbound Ramps / Leucadia Boulevard (Signalized)
2. I-5 Northbound Ramps / Leucadia Boulevard (Signalized)
3. Urania Avenue/Clark Avenue / Leucadia Boulevard (Signalized)
4. Saxony Road / Leucadia Boulevard (Signalized)
5. Sidonia Street / Leucadia Boulevard (Signalized)
6. Quail Gardens Drive / Leucadia Boulevard (Signalized)
7. Garden View Road / Leucadia Boulevard (Signalized)
8. Town Center Place / Leucadia Boulevard (Signalized)
9. El Camino Real / Leucadia Boulevard (Signalized)
10. Quail Gardens Drive / Project Driveway #1

Freeway Ramps

1. I-5 Southbound Ramp @ Leucadia Boulevard
2. I-5 Northbound Ramp @ Leucadia Boulevard

Freeway mainline segments were not analyzed in the study as no freeway mainline will add 50 or more peak hour trips in either direction.

ES.2 Off-Site Improvement Recommendations to Accommodate Project Traffic

Existing Conditions

Roadway Segment Analysis

All roadway segments within the project study area currently operate at acceptable LOS D or better. All roadway segments are also projected to operate at LOS D or better with the implementation of the Proposed Project. Therefore, since the implementation of the Proposed Project will not degrade roadway segment operations to a sub-standard condition, the Proposed Project will not cause operations to fall below the City standards at any of the roadway segments, and no off-site improvements are recommended.

Intersection Analysis

All intersections within the project study area currently operate at acceptable LOS D or better during both the AM and PM peak hours under Existing conditions, with the exception of the following two (2) intersections:

- Garden View Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour. This is primarily due to the southbound through and right turn movements which experiences particularly high delay compared to all other movements at the intersection during the AM peak hour. Additionally, heavy volumes on Leucadia Boulevard, particularly the eastbound through movement, also experience high delays during the PM peak hour when residents are exiting the freeway and returning home in the evening.

- El Camino Real / Leucadia Boulevard – LOS F during the AM and PM peak hours, primarily due to the heavy volume for the westbound left and northbound throughs. Due to these high volumes for conflicting movements, signal green times are limited resulting in high vehicle delays.

All intersections are also projected to operate at LOS D or better, with the addition of Project traffic during both the AM and PM peak hours, with the exception of the following two (2) intersections:

- Garden View Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour
- El Camino Real / Leucadia Boulevard – LOS F during the AM and PM peak hours

Since the implementation of the Proposed Project would not add 2 seconds or more of additional delay to an intersection operating at LOS E or F, the Proposed Project would not create a substantial effect to any of the intersections, and no off-site improvements are recommended.

Ramp Metering Analysis

Both southbound and northbound I-5 on-ramps located at Leucadia Boulevard within the study area currently do not experience particularly high delays during the peak hours (over 15 minutes). Additionally, both on-ramps are not projected to experience particularly high delays with addition of Proposed Project traffic. Therefore, since implementation of the Proposed Project will not degrade ramp meter operations, the Proposed Project will not cause operations to fall below City standards, and no off-site improvements are recommended.

Near-Term Conditions

Roadway Segment Analysis

All roadway segments within the project study area are projected to operate at acceptable LOS D or better under Near-Term Base conditions. All roadway segments are also projected to operate at LOS D or better under Near-Term Base with Project conditions. Therefore, since the implementation of the Proposed Project will not degrade roadway segment operations to a sub-standard condition, the Proposed Project will not cause operations to fall below the City standards at any of the roadway segments, and no off-site improvements are recommended.

Intersection Analysis

All intersections within the project study area would operate at an acceptable LOS D or better during both the AM and PM peak hours under Near-Term Base conditions, with the exception of the following two (2) intersections:

- Garden View Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour
- El Camino Real / Leucadia Boulevard – LOS F during the AM and PM peak hours

All of the study intersection would continue to operate at acceptable LOS D or better, during both the AM and PM peak hours, with the addition of Project traffic, with the exception of the following two (2) intersections:

- Garden View Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour
- El Camino Real / Leucadia Boulevard – LOS F during the AM and PM peak hours

Since the implementation of the Proposed Project would not add 2 seconds or more of additional delay to an intersection operating at LOS E or F, the Proposed Project will not create a substantial effect to any of the intersections, and no off-site improvements are recommended.

Ramp Metering Analysis

Both southbound and northbound I-5 on-ramps located at Leucadia Boulevard within the study area are not projected to experience particularly high delays during the peak hours (over 15 minutes) under Near-Term Base conditions. Additionally, both on-ramps are not projected to experience particularly high delays with addition of Proposed Project traffic. Therefore, since implementation of the Proposed Project will not degrade ramp meter operations, the Proposed Project will not cause operations to fall below City standards, and no off-site improvements are recommended.

Future Year 2035 Conditions

Roadway Segment Analysis

All roadway segments within the project study area are projected to operate at acceptable LOS D or better under Future Year 2035 Base conditions, with the exception of the following five (5) roadway segments:

- Leucadia Boulevard, between I-5 Northbound Ramps and Urania Avenue – LOS E
- Leucadia Boulevard, between Urania Avenue and Saxony Road – LOS E
- Leucadia Boulevard, between Saxony Road and Sidonia Street – LOS E
- Leucadia Boulevard, between Sidonia Street and Quail Gardens Drive – LOS E
- Leucadia Boulevard, between Quail Gardens Drive and Garden View Road – LOS F

All roadway segments are also projected to operate at LOS D or better under Future Year 2035 Base with Project conditions, with the exception of the following five (5) roadway segments:

- Leucadia Boulevard, between I-5 Northbound Ramps and Urania Avenue – LOS E
- Leucadia Boulevard, between Urania Avenue and Saxony Road – LOS E
- Leucadia Boulevard, between Saxony Road and Sidonia Street – LOS E
- Leucadia Boulevard, between Sidonia Street and Quail Gardens Drive – LOS E
- Leucadia Boulevard, between Quail Gardens Drive and Garden View Road – LOS F

These deficient roadway segments are consistent with what was identified in the City of Encinitas *Housing Plan Update 2018 EA* and approved for their sub-standard operations.

Since the implementation of the Proposed Project would not increase 0.2 or more of volume-to-capacity (v/c) ratio of a roadway segment operating at LOS E or F, the Proposed Project would not cause a substantial effect to any of the roadway segments, and no off-site improvements are recommended.

Intersection Analysis

All intersections within the project study area are anticipated operate at an acceptable LOS D or better during both the AM and PM peak hours under Future Year 2035 Base conditions, with the exception of the following five (5) intersections:

- Saxony Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour
- Quail Gardens Drive / Leucadia Boulevard – LOS F during the AM and PM peak hours
- Garden View Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour
- Town Center Place / Leucadia Boulevard – LOS F during the PM peak hour

- El Camino Real / Leucadia Boulevard – LOS F during the AM and PM peak hours

All of the study intersections are anticipated to operate at acceptable LOS D or better, during both the AM and PM peak hours, with the addition of Project traffic, with the exception of the following five (5) intersections:

- Saxony Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour
- Quail Gardens Drive / Leucadia Boulevard – LOS F during the AM and PM peak hours
- Garden View Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour
- Town Center Place / Leucadia Boulevard – LOS F during the PM peak hour
- El Camino Real / Leucadia Boulevard – LOS F during the AM and PM peak hours

Several intersections (i.e. Quail Gardens Drive/Leucadia Boulevard, Garden View Road/Leucadia Boulevard, and Town Center Place/Leucadia Boulevard) are not specified as deficient operations in the City of Encinitas *Housing Plan Update 2018 EA* as that study assumed improvements such as signal optimization to occur in the Future Year 2035 Baseline, whereas this analysis did not.

Based on the measures of substantial effect outlined in Section 2.5 of this report, because the implementation of the Proposed Project would add 2 seconds or more of additional delay to an intersection operating at LOS E or F, the Proposed Project would create a substantial effect at two (2) of the following intersections:

- *Saxony Road / Leucadia Boulevard* – To improve traffic operations at this location, the traffic signal operations would need to be modified to convert the northbound and southbound approaches from protected left-turn operation to protected-permissive left-turn operation. This recommendation is consistent with the assumption provided in the traffic impact study prepared for the City of Encinitas *Housing Plan Update 2018 EA*.

- *Garden View Road / Leucadia Boulevard* – To improve traffic operations at this location, the signal timing would need to be optimized or install traffic systems management (TSM) strategies (e.g. adaptive signal timing) to maximize efficiency of the corridor. Signal optimization could include reoptimizing cycle lengths and/or signal splits to better accommodate future traffic demand along the corridor[1]. Implementing this would improve intersection vehicle delays to better than pre-project conditions. This assumption is consistent with the traffic impact study prepared for the City of Encinitas *Housing Plan Update 2018 EA,* which assumes implementation of signal optimization for the circulation element roadways/intersections under Future Year 2035 conditions. Signal optimization, or timing adjustment based on traffic demand, could result in intersection capacity, vehicle throughput, and reduction in vehicle delays.

Table ES.1 display intersection LOS and average vehicle delay results under Future Year 2035 Base with Project conditions with off-site improvement recommendations.

Table ES.1 Peak Hour Intersection Level of Service Results – Future Year 2035 Base with Project Conditions with Off-Site Improvements

[1] Cycle lengths at Garden View Road/Leucadia Boulevard would need to be increased by 20 seconds to accommodate the additional demand on Leucadia Boulevard during the peak hours.

#	Intersection	Control Type	AM Peak Hour w/ Project w/ Off-Site Improvements		PM Peak Hour w/ Project w/ Off-Site Improvements		Delay w/o Project (sec) AM/PM	LOS w/o Project AM/PM	Change in Delay (sec)
			Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS			
4	Saxony Road / Leucadia Boulevard	Signal	60.5	**E**	59.3	**E**	64.8 / 102.3	**E / F**	-4.3 / -43.0
7	Garden View Road / Leucadia Boulevard	Signal	49.4	D	54.4	D	73.6 / 170.2	**E / F**	-24.2 / -115.8

Notes:
Bold letter indicates substandard Level of Service E or F.

As shown in Table ES.1, the recommended off-site improvements would improve traffic operations at intersections operating at substandard LOS with addition of project traffic.

Ramp Metering Analysis

Both southbound and northbound I-5 on-ramps within the study area experience particularly high delays associated with ramp meters under Future Year 2035 Base conditions during the peak hours where a delay of 15-minutes or more was calculated:

- I-5 SB On-Ramp @ Leucadia Boulevard – 24.6 minutes during the AM peak hour
- I-5 NB On-Ramp @ Leucadia Boulevard – 35.1 minutes during the PM peak hour

Additionally, these two ramps would continue to operate with particularly high delays with the addition of Project traffic:

- I-5 SB On-Ramp @ Leucadia Boulevard – 26.0 minutes during the AM peak hour
- I-5 NB On-Ramp @ Leucadia Boulevard – 35.7 minutes during the PM peak hour

However, since the implementation of the Proposed Project would not add 2 minutes or more of additional delay to a ramp meter operating with over 15-minutes of delay, the Proposed Project would not create a substantial effect to any of the ramp meters, and no off-site improvements are recommended.

City Transportation Fee

The Proposed Project would pay the applicable City Transportation Fees pursuant to Senate Bill 330.

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1.0 Introduction

The purpose of this Vehicle Operations and Queuing Analysis is to identify and document potential transportation related needs associated with the Fox Point Farms project (Proposed Project).

1.1 Project Background

The Proposed Project is located at the northwest corner of the intersection of Quail Gardens Drive and Leucadia Boulevard within the City of Encinitas. The Proposed Project would redevelop the existing 18-acre flower mart with 197 apartment dwelling units, 53 condominium units (for a total of 250 units, consistent with the City's Housing Element), 3,500 square foot of quality restaurant, a 3,213 square foot farm stand, a 3,000 square foot nursery, and 5.5 acres of agricultural open space. Figure 1.1 displays the project regional location.

Project access will be provided via an existing driveway along Quail Gardens Drive with full access and function as a side-street stop-controlled intersection. An emergency access driveway will be provided on Sidonia Street via a gated entry.

Additional analysis has been provided for a two-driveway site access option that would utilize not only existing driveway along Quail Gardens Drive, but a newly constructed driveway along Sidonia Street. Under this option, it was assumed that both driveways will function with full access and as side-street stop-controlled intersections.

1.2 Report Organization

Following this introduction chapter, this report is organized into the following sections:

2.0 *Analysis Methodology* – This chapter describes the methodologies and standards utilized to analyze traffic conditions.

3.0 *Project Description* – This chapter describes the Proposed Project including project trip generation, trip distribution, and trip assignment.

4.0 *Existing Conditions* – This chapter describes the existing traffic network within the study area and provides analysis results for existing traffic conditions and existing traffic conditions with the addition of the Proposed Project. Off-site improvement recommendations, if necessary, for project related traffic deficiencies are also identified.

5.0 *Near-Term Base Traffic Conditions* – This chapter describes near-term developments anticipated to generate additional study area trips by year 2023, the Proposed Project opening year. Analysis results are provided for the No-Project (Year 2023 Base) and Year 2023 Base with Project conditions, along with recommended off-site improvements (if necessary).

6.0 *Future Year Traffic Conditions* – This chapter describes projected long-range future cumulative traffic conditions. Traffic analysis results are presented for the No-Project (Future Year 2035 Base) and with Project conditions. Project related traffic deficiencies and associated off-site improvement recommendations are identified for Future Year 2035 Base with Project Conditions, as appropriate.

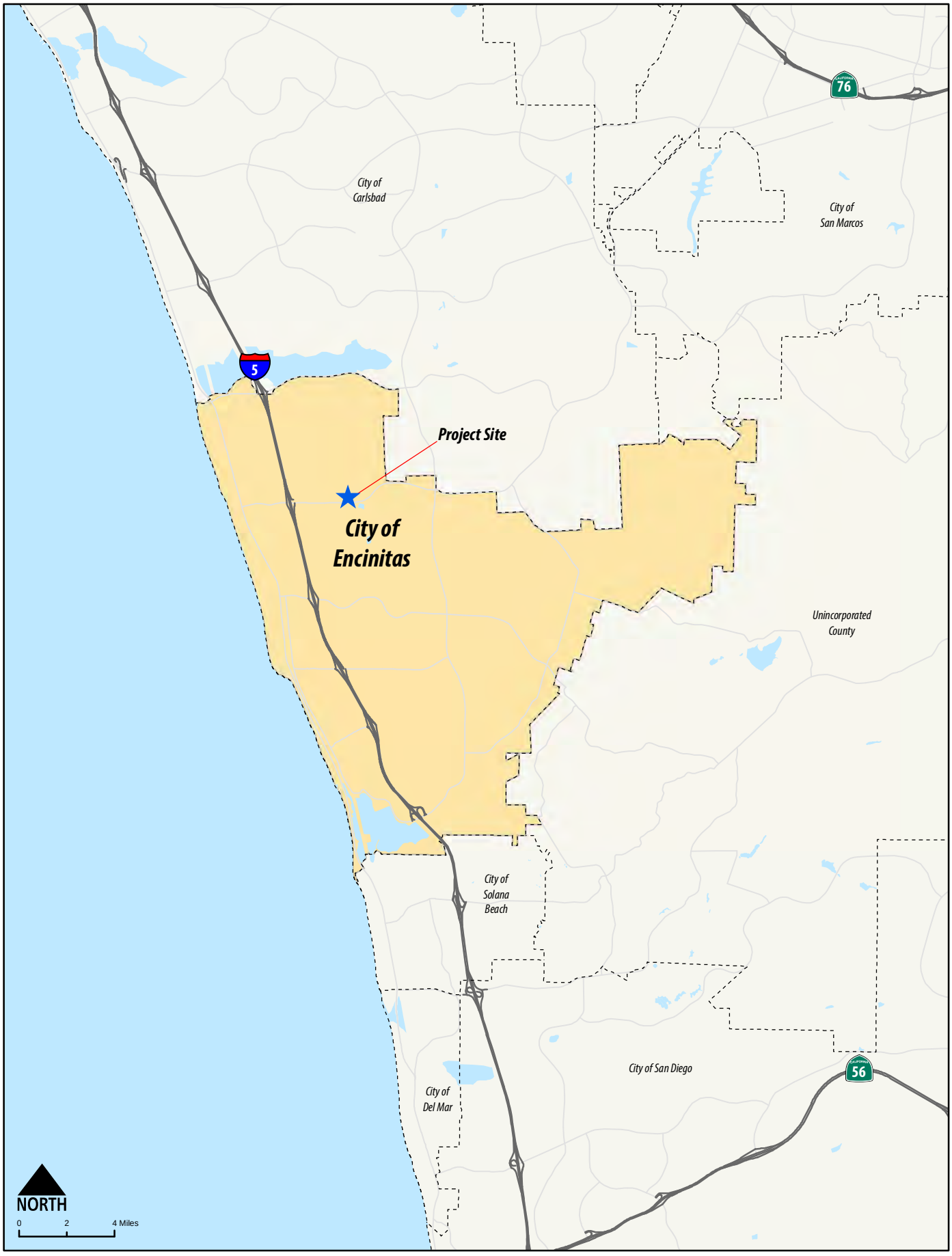
7.0 *Site Access & On-Site Circulation* – This chapter addresses access and internal circulation within the project site.

8.0 *Project Driveway Option* – This chapter describes traffic conditions for Existing, Near-Term, and Future scenarios with the Proposed Project utilizing a two-driveway site access option. Analysis results are provided for the two-driveway site access option and compared to the No-Project scenario.

9.0 *Pedestrian, Bicycle, and Transit Assessment* – This chapter discusses the project site's alternative transportation modes (walking, bicycling, and transit).

10.0 *Transportation Demand Management* – This chapter discusses the Proposed Project's Transportation Demand Management program.

11.0 *Construction Analysis* – This chapter discusses the anticipated construction related traffic volumes during project construction.



Fox Point Farms
Vehicle Operations and Queuing Analysis
CHEN RYAN

Figure 1.1
Project Regional Location

2.0 Analysis Methodology

Detailed information on intersection analysis methodologies, standards, and thresholds are discussed in the following sections.

2.1 Level of Service Definition

Level of Service (LOS) is a quantitative measure describing operational conditions within a traffic stream, and the motorist's and/or passengers' perception of operations. A LOS definition generally describes these conditions in terms of such factors as delay, speed, travel time, freedom to maneuver, interruptions in traffic flow, queuing, comfort, and convenience. Table 2.1 describes generalized definitions of the various LOS categories (A through F) as applied to roadway operations.

Table 2.1 Level of Service Definitions

LOS Category	Definition of Operation
A	This LOS represents a completely free-flow condition, where the operation of vehicles is virtually unaffected by the presence of other vehicles and only constrained by the geometric features of the highway and by driver preferences.
B	This LOS represents a relatively free-flow condition, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver.
C	At this LOS the influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles.
D	At this LOS, the ability to maneuver is notably restricted due to traffic congestion, and only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.
E	This LOS represents operations at or near capacity. LOS E is an unstable level, with vehicles operating with minimum spacing for maintaining uniform flow. At LOS E, disruptions cannot be dissipated readily thus causing deterioration down to LOS F.
F	At this LOS, forced or breakdown of traffic flow occurs, although operations appear to be at capacity, queues form behind these breakdowns. Operations within queues are highly unstable, with vehicles experiencing brief periods of movement followed by stoppages.

Source: Highway Capacity Manual 6th Edition

2.2 Roadway Segment Level of Service Standards and Thresholds

Roadway segment LOS standards and thresholds provide the basis for analysis of arterial roadway segment performance. The analysis of roadway segment LOS is based on the functional classification of the roadway, the maximum capacity, roadway geometrics, and existing or forecast Average Daily Traffic (ADT) volumes. Table 2.2 presents the roadway segment capacity and LOS standards utilized to analyze roadways evaluated in this report. The actual capacity of a roadway facility varies according to its physical attributes. LOS D is considered acceptable within the City of Encinitas. Typically, the performance and level of service of a roadway segment is heavily influenced by the ability of the arterial intersections to accommodate peak hour volumes.

Table 2.2 City of Encinitas – Roadway Classifications and LOS Standards

Facility Type	Lane Configuration	ADT Capacity		
		LOS C	LOS D	LOS E
Prime Arterial	6 Lanes – Divided	<46,000	<51,200	<57,000
Prime Arterial – Augmented	6+ Lanes – Divided	<53,000	<60,000	<66,000
Major Roadway	4 Lanes - Divided	<28,200	<31,600	<35,200
Major Roadway – Augmented	4+ Lanes – Divided	<36,300	<41,000	<45,400
Collector Roadway	4 Lanes – Divided	<26,000	<29,200	<32,400
Local Roadway	2 Lanes	<11,200	<12,600	<14,000
Local Roadway – Augmented	2+ Lanes	<16,000	<18,000	<20,000

Source: City of Encinitas General Plan 2003

These standards are generally used as long-range planning guidelines to determine the functional classification of roadways. The actual capacity of a roadway facility varies according to its physical attributes. Typically, the performance and LOS of a roadway segment is heavily influenced by the ability of its intersections to accommodate peak hour traffic volumes. For the purposes of this traffic analysis, LOS D is considered acceptable for circulation element roadway segments.

2.3 Peak Hour Intersection Level of Service Standards and Thresholds

This section presents the methodologies used to perform peak hour intersection capacity analysis for signalized and unsignalized intersections. The following assumptions were utilized in conducting all intersection level of service analysis:

- *Peak Hour Factor:* Based on existing peak hour count for existing conditions, and a minimum of 0.92 for all future conditions (unless higher in existing conditions).

- *Signal Timing*: Based on existing signal timing plans (as of November 2019), provided in **Appendix A**.

2.3.1 Signalized Intersection Analysis

The analysis of signalized intersections utilized the operational analysis procedure as outlined in the Highway Capacity Manual (HCM) 6th Edition signalized intersection analysis methodology. This method defines LOS in terms of delay, or more specifically, average stopped delay per vehicle. Delay is a measure of driver and/or passenger discomfort, frustration, fuel consumption and lost travel time. This technique uses 1,900 vehicles per hour per lane (VPHPL) as the maximum saturation volume of an intersection. This saturation volume is adjusted to account for lane width, on-street parking, pedestrians, traffic composition (i.e., percentage trucks) and shared lane movements (i.e. through and right-turn movements originating from the same lane). The LOS criteria used for the analysis of signalized intersections are described in **Table 2.3**, identifying the thresholds of control delays and the associated LOS. The computerized analysis of intersection operations was performed utilizing the Synchro Version 10 traffic analysis software by Trafficware Ltd.

Table 2.3 Signalized Intersection LOS Operational Analysis Method

Average Stopped Delay Per Vehicle (seconds)	Level of Service (LOS) Characteristics
≤10	*LOS A* describes operations with very low delay. This occurs when progression is extremely favorable, and most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
>10– 20	*LOS B* describes operations with generally good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
>20 – 35	*LOS C* describes operations with higher delays, which may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
>35– 55	*LOS D* describes operations with high delay, resulting from some combination of unfavorable progression, long cycle lengths, or high volumes. The influence of congestion becomes more noticeable, and individual cycle failures are noticeable.
>55 – 80	*LOS E* is considered the limit of acceptable delay. Individual cycle failures are frequent occurrences.
>80	*LOS F* describes a condition of excessively high delay, considered unacceptable to most drivers. This condition often occurs when arrival flow rates exceed the LOS D capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes to such delay.

Source: Highway Capacity Manual 6th Edition

2.3.2 Unsignalized Intersection Analysis

Side-street stop-controlled intersections were analyzed using the Highway Capacity Manual 6th Edition (Section 19) Two-Way Stop-Controlled Intersection analysis methodology. The Synchro Version 10 software supports this methodology and was utilized to produce LOS results. The LOS for a two-way stop-controlled (SSSC) intersection is determined by the computed or measured control delay and is defined for each minor movement. **Table 2.4** summarizes the LOS criteria for unsignalized intersections.

Table 2.4 LOS Criteria for Stop-Controlled Unsignalized Intersections

Average Stopped Delay Per Vehicle (sec/veh)	LOS
<10	A
>10 to <15	B
>15 to <25	C
>25 to <35	D
>35 to <50	E
>50	F

Source: Highway Capacity Manual 6th Edition

2.4 Ramp Metering Analysis

Ramp metering analysis was conducted to calculate delays and queues at the study area freeway on-ramps. Within the project study area, the I-5 northbound on-ramp at Leucadia Boulevard and the I-5 southbound on-ramp at Leucadia Boulevard have activated ramp meters. The demand per hour per lane was calculated using the following equation:

$$Dvol = \frac{(Pvol - Hvol)}{N}$$

- Dvol (Demand Volume per hour per Lane): total peak hour demand expected to use the on-ramp (non-HOV lane only);
- Pvol (Peak Hour Ramp Volume): sum of all peak hour volumes using the on-ramp;
- Hvol (HOV lane volume): based on field observation, approximately 20% of the Pvol utilized the HOV lane; and
- N: number of non-HOV lanes at the on-ramp.

2.5 Determination of Substantial Effects

This section outlines the thresholds for determination of substantial project-related effects on study area facilities.

In general, a substantial effect would be identified when the addition of project traffic results in a level of service dropping from LOS D or better to substandard LOS E or F. **Table 2.5** summarizes the thresholds for determining substantial effects for facilities operating at substandard level of service with and without the project. These thresholds, as applied to roadway segments, are based upon an acceptable increase in the Volume / Capacity (V/C) ratio.

Table 2.5 Measures of Substantial Project Transportation Effects

LOS with Project	Allowable Change					
	Freeways		Roadway Segments		Intersections	Ramp Metering
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
E & F (or ramp meter delays above 15 min.)	0.01	1	0.02	1	2	2

2.6 Determination of Inconsistencies with Circulation Element

This section outlines City's Circulation Element Policies that are relevant to the Proposed Project.

In general, an inconsistency with the Circulation Element would be identified when the addition of project traffic results in level of service that deviates from the following two policies:

- Policy 1.2: Endeavor to maintain Level of Service C as a basic design guideline for the local system of roadways understanding that the guideline may not be attainable in all cases; and

- Policy 1.3: Prohibit development which results in Level of Service E or F at any intersection unless no alternatives exist, and an overriding public need can be demonstrated.

Additionally, an inconsistency with the Circulation Element would be identified if the project deviates from the following policy:

- Policy 1.15: The City will actively support an integrated transportation program that encourages and provides for mass-transit, bicycle transportation, pedestrians, equestrians, and car-pooling.

Consistency with these three Circulation Element policies were the only policies evaluated in this analysis since they focus on circulation element roadways. The Proposed Project is not proposing any features that are inconsistent with the City's Circulation Element. It should be noted that the Proposed Project land uses are consistent with those assumed in the City's Housing Element. Therefore, the roadway operation findings in this study are also consistent with those outlined in the City's Housing Element Environmental Assessment. As a result, the Proposed Project will not change or create any inconsistencies within the City's Circulation Element.

3.0 Project Traffic

This section describes the Proposed Project, including land uses and estimated trip generation, trip distribution, and assignment.

3.1 Project Description

The project is located at the northwest corner of the intersection of Quail Gardens Drive and Leucadia Boulevard within the City of Encinitas. The Proposed Project proposes to redevelop the existing 18-acre flower mart with 197 apartment dwelling units, 53 condominium units, 3,500 square foot of quality restaurant, a 3,213 square foot farm stand, a 3,000 square foot nursery, and 5.5 acres of agricultural open space. **Figure 3.1** illustrates the Proposed Project site plan.

3.2 Project Trip Generation, Distribution, and Assignment

3.2.1 Project Trip Generation

Trip generation rates for the Proposed Project were developed utilizing SANDAG's *(not so) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (SANDAG, April 2002). Since the Proposed Project will replace the existing flower mart with the proposed uses, the trips associated with the flower mart were credited towards the Proposed Project's net trip generation as those trips are already traveling to the site and not newly generated. To determine the site's existing trip generation, traffic counts were collected at the flower mart's existing driveways. The driveway traffic counts are in included in **Appendix B**. **Table 3.1** displays net daily, as well as AM and PM peak hour, project trip generation.

Table 3.1 Project Trip Generation

Land Use	Units	Trip Rate	ADT	AM Peak Hour					PM Peak Hour				
				%	Trips	Split	In	Out	%	Trips	Split	In	Out
Existing Land Uses													
Flower Mart[1]	18 acres	Driveway Count	-334	3%	-27	-	-16	-11	10%	-31	-	-10	-21
Proposed Land Uses													
Apartment	197 DU	6 / DU	1,182	8%	95	2:8	19	76	9%	107	7:3	75	32
Condominiums	53 DU	8 / DU	424	8%	34	2:8	7	27	10%	73	7:3	30	13
Restaurant	3,500 SF	100 / KSF	350	1%	4	6:4	2	2	8%	28	7:3	20	8
Open Space	5.5 acres	2 / acre	11	0%	0	-	0	0	0%	0	-	0	0
Farm Stand	1,232 SF[2]	40 / KSF[3]	50	3%	2	6:4	1	1	10%	5	5:5	3	2
Nursery	0.07 acres	90 / acre	7	3%	1	6:4	1	0	10%	1	5:5	1	0
		SUB-TOTAL	**2,024**	**-**	**136**	**-**	**30**	**106**	**-**	**184**	**-**	**129**	**55**
		TOTAL	**1,690**	**-**	**109**	**-**	**14**	**95**	**-**	**153**	**-**	**119**	**34**

Source: SANDAG (not so) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002

Note:
[1] Based on driveway counts collected on a midweek day in October 2019.
[2] This is net square feet from the 3,213 gross square feet for farm stand.
[3] Garden nursery rate, which is also consistent with specialty retail/commercial retail trip generation.

As shown in Table 3.1, the Proposed Project is anticipated to generate a total of 1,690 daily trips, including 109 (14-in / 95-out) trips during the AM peak hour and 153 trips (119-in / 34-out) during the PM peak hour.



Source: Nolen Communities & Schmidt Design Group

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Figure 3.1
Project Site Plan

3.2.2 Project Trip Distribution

The trip distribution for the Proposed Project was developed based on SANDAG Series 13 Transportation Forecast Select Zone Assignment shown in **Appendix C**. Based on the select zone assignment, trip distribution patterns were determined as follows:

- 51% of the Proposed Project trips were assigned along Leucadia Boulevard west of the project site
- 38% of the Proposed Project trips were assigned along Leucadia Boulevard east of the project site
- 10% of the Proposed Project trips were assigned along Quail Gardens Drive south of the project site
- 1% of the Proposed Project trips were assigned along Quail Gardens Drive north of the project site

Figure 3.2 displays the trip distribution patterns associated with the Proposed Project.

3.2.3 Project Trip Assignment

Based upon the Proposed Project trip generation (Table 3.1) and distribution (Figure 3.2), daily trips as well as AM/PM peak hour project trips were assigned to the adjacent roadway network, as displayed in **Figure 3.3**.

3.3 Project Study Area

The Project Study area was defined based on the Standards outlined in the *Guidelines for Transportation Impact Studies in the San Diego Region, January 22, 2019.* As stated on page 7-3 of the Guidelines:

> All local roadway segments between signalized intersections (including all State surface routes), intersections, and mainline freeway locations where the proposed project will add 50 or more peak-hour trips in either direction to the existing roadway traffic.
>
> All freeway entrance and exit ramps where the proposed project will add a substantial number of peak-hour trips to cause any traffic queues to exceed ramp storage capacities. (NOTE: Care must be taken to include other ramps and intersections that may receive project traffic diverted as a result of already existing, or project causing congestion at freeway entrances and exits.)

Therefore, based on the project trip assignment shown in Figure 3.3, the following nine (9) roadway segments, ten (10) intersections, and two (2) freeway ramps were analyzed in the study:

Roadway Segments

1. Leucadia Boulevard, between I-5 NB Ramps and Urania Avenue
2. Leucadia Boulevard, between Urania Avenue and Saxony Road
3. Leucadia Boulevard, between Saxony Road and Sidonia Street
4. Leucadia Boulevard, between Sidonia Street and Quail Gardens Drive
5. Leucadia Boulevard, between Quail Gardens Drive and Garden View Road
6. Leucadia Boulevard, between Garden View Road and Town Center Place
7. Leucadia Boulevard, between Town Center Place and El Camino Real
8. Quail Gardens Drive, between Ranch Road and Project Driveway #1
9. Quail Gardens Drive, between Project Driveway #1 and Leucadia Boulevard

Intersections

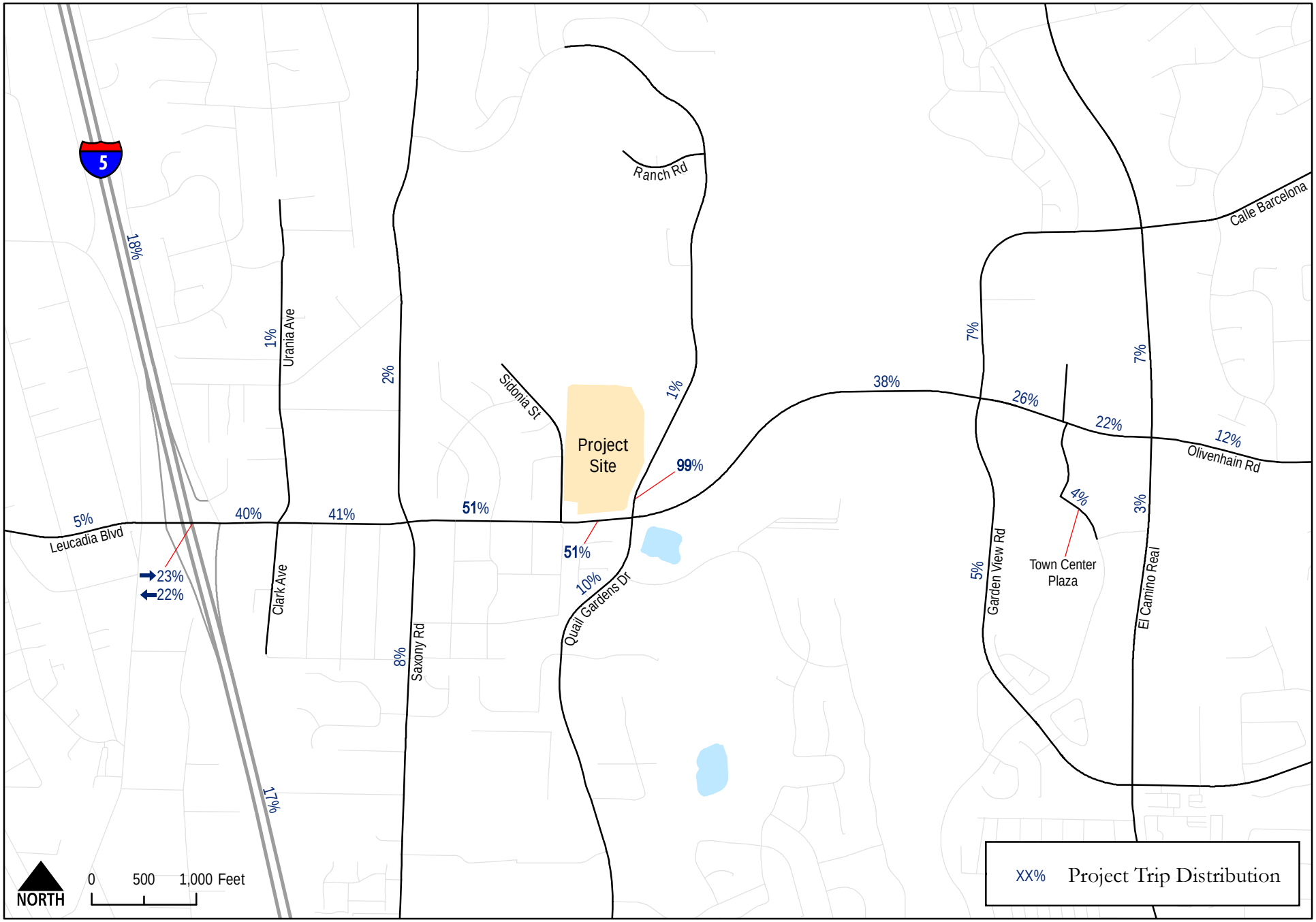
1. I-5 Southbound Ramps / Leucadia Boulevard (Signalized)
2. I-5 Northbound Ramps / Leucadia Boulevard (Signalized)
3. Urania Avenue/Clark Avenue / Leucadia Boulevard (Signalized)
4. Saxony Road / Leucadia Boulevard (Signalized)
5. Sidonia Street / Leucadia Boulevard (Signalized)
6. Quail Gardens Drive / Leucadia Boulevard (Signalized)
7. Garden View Road / Leucadia Boulevard (Signalized)
8. Town Center Place / Leucadia Boulevard (Signalized)
9. El Camino Real / Leucadia Boulevard (Signalized)
10. Quail Gardens Drive / Project Driveway #1

As shown in Figure 3.2, 10% of the Proposed Projects traffic is anticipated to travel on Quail Gardens, south of Leucadia Drive. However, as shown in Figure 3.3, this equates to only 10 project trips in the AM peak hour and 15 project trips in the PM peak. This is well be below the 50 peak hour trip threshold outlined in the *Guidelines for Transportation Impact Studies in the San Diego Region, January 22, 2019* (discussed above); therefore, no transportation facilities along this segment were analyzed.

Freeway Ramps

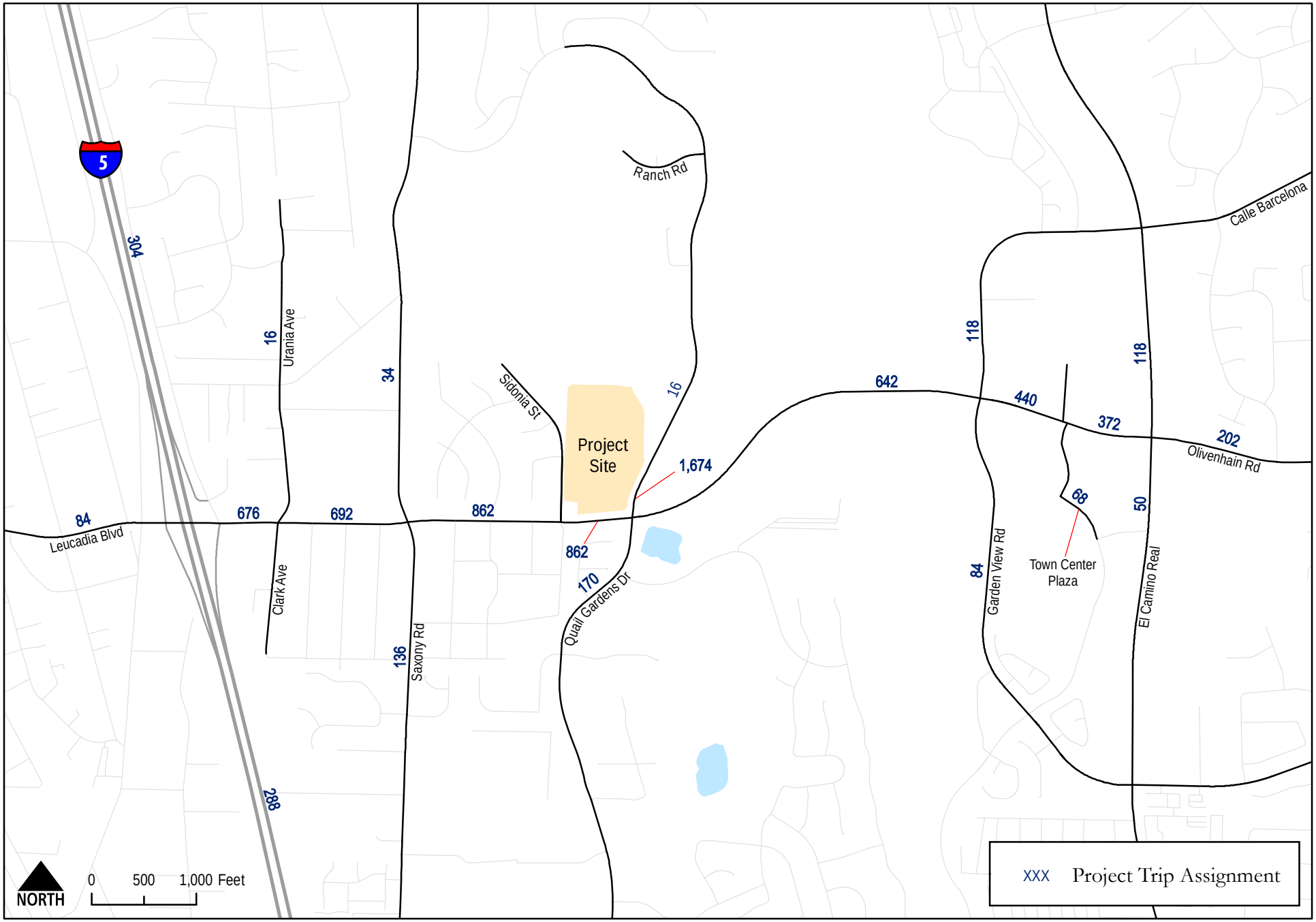
1. I-5 Southbound Ramp @ Leucadia Boulevard
2. I-5 Northbound Ramp @ Leucadia Boulevard

Additionally, the Proposed Project would not contribute more than 50 peak hour trips in either direction on Interstate (I) 5, therefore freeway analysis was not conducted. Figure 3.4 illustrates the project study area.



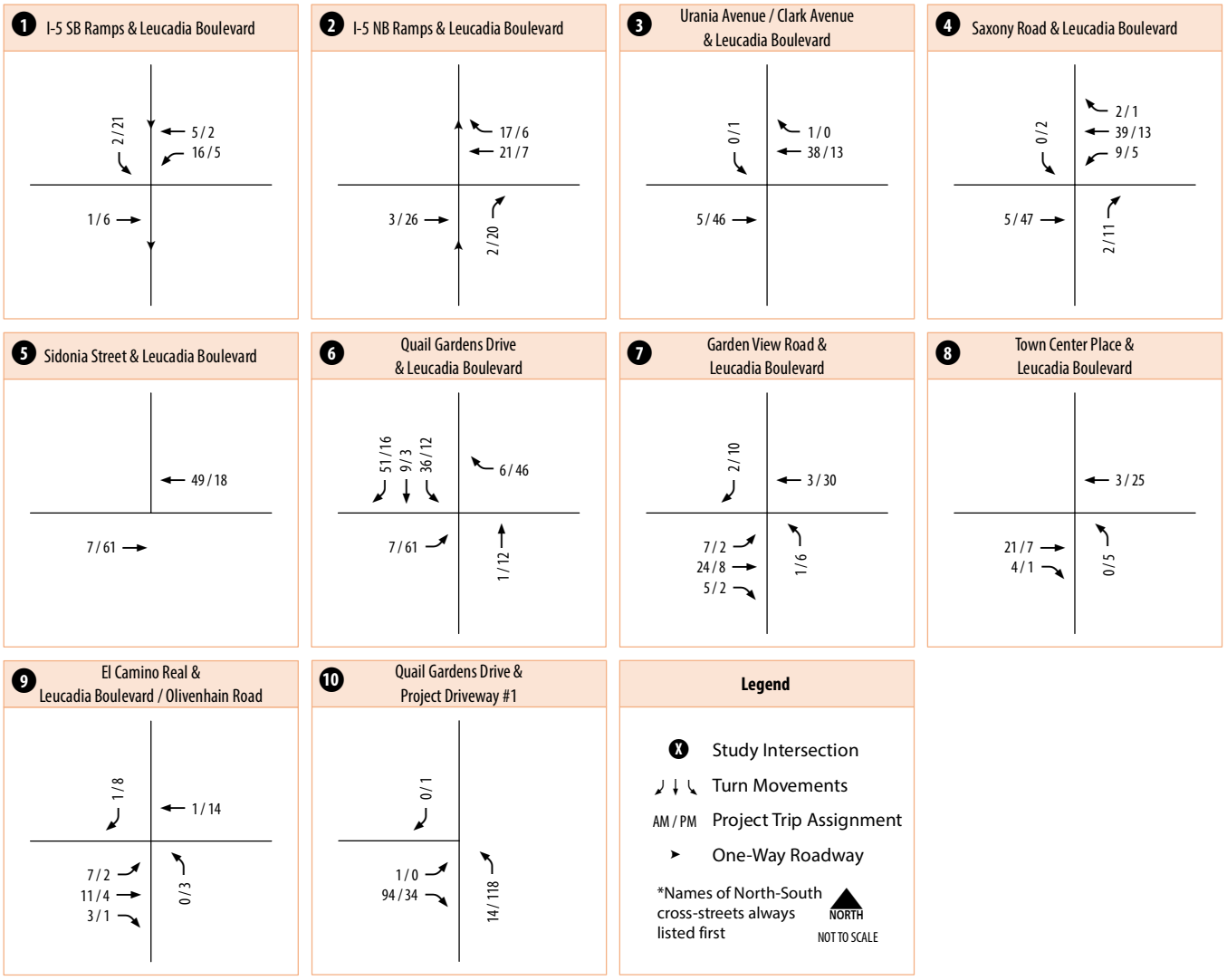
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Figure 3.2
Project Trip Distribution



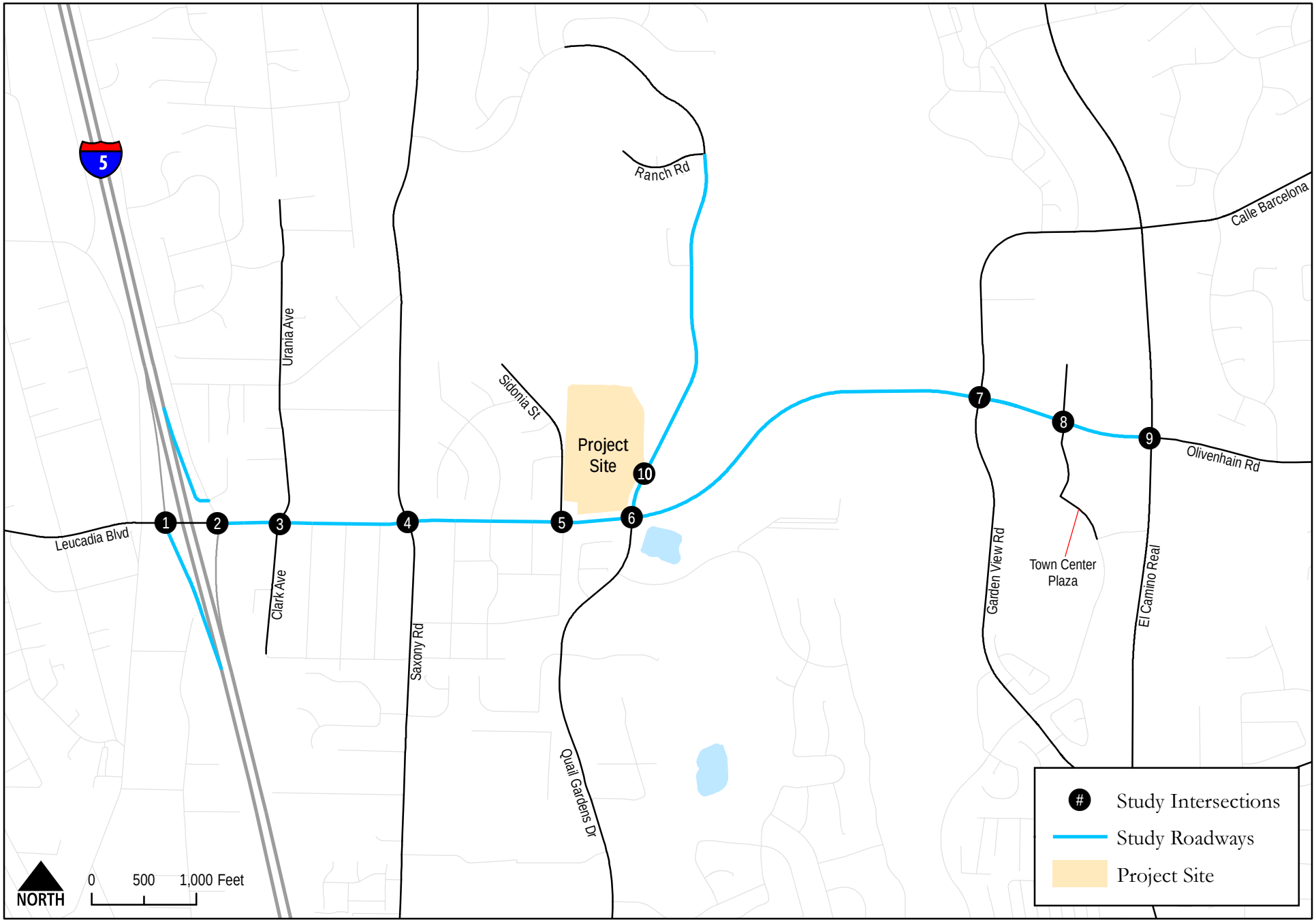
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Figure 3.3
Project Trip Assignment



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Figure 3.3
Traffic Volumes
Project Trip Assignment



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Figure 3.4
Project Study Area

4.0 Existing Conditions

This section describes key study intersections, existing roadway and peak hour intersection traffic volume information and LOS analysis results under Existing conditions.

4.1 Existing Roadway Network

Several regional and locally significant roadways traverse the study area. Those roadway characteristics are described below.

North-South Roadways

Interstate 5 (I-5) – Within the project study area, I-5 is a north-south freeway located approximately 3,600 free to the west of the Proposed Project site. Access from the I-5 to the study area is taken from the Leucadia Boulevard interchange. Since the Proposed Project would contribute less than 50 peak hour trips to the I-5, freeway analysis was not conducted.

Saxony Road – Within the project study area, Saxony Road is a two-lane roadway with posted speed limits of 30 and 35 miles per hour. Sidewalks are present intermittently on both sides of the roadway, but bicycle facilities are not present on either side. On-street parking is permitted along the roadway fronting residential land uses only. According to the *City of Encinitas General Plan* (2003), Saxony Road is classified as a Two-Lane Local Collector Roadway.

Sidonia Street – Within the project study area, Sidonia Street is a two-lane undivided roadway between Guildford Court and Leucadia Boulevard with a posted speed limit of 25 miles per hour. Sidewalk facilities are present along the west side of the roadway, but not the east side. Additionally, on-street parking is permitted along the west side of the roadway. Sidonia Street is not classified as a circulation element within the *City of Encinitas General Plan* (2003).

Quail Gardens Drive – Within the project study area, Quail Gardens Drive is a two-lane roadway with a raised median between Ranch Road and Leucadia Boulevard. Quail Gardens Drive has a posted speed limit of 35 miles per hour. On-street parking is not permitted. A dirt path exists along the east side of the roadway and sidewalk facilities along the west side of the roadway. There are Class II bicycle facilities along both sides of Quail Gardens Drive. According to the *City of Encinitas General Plan* (2003), Quail Gardens Drive is classified as a Two-Lane Local Roadway - Augmented.

El Camino Real – Within the project study area, El Camino Real is a six-lane roadway with a raised median and a posted speed limit of 45 miles per hour between Calle Barcelona and Town Center Drive. Sidewalks and Class II bicycle facilities exist on both sides of the roadway. On-street parking is not permitted on either side of the roadway. According to the *City of Encinitas General Plan* (2003), El Camino Real is classified as a Six-Lane Prime Arterial – Augmented.

East-West Roadways

Leucadia Boulevard – Within the project study area, Leucadia Boulevard is a four-lane roadway with a raised median between Urania Avenue and Garden View Road, a five-lane roadway with a raised median between the I-5 northbound ramps and Urania Avenue, and a six-lane roadway with a raised median between Garden View Road and El Camino Real. Leucadia Boulevard has a posted speed limits of 40 and 45 miles per hour. On-street parking is not permitted, and sidewalks are present on both sides with exception to the segment between Quail Gardens Drive and Garden View Road where a paved path exists along the south side of the roadway. Additionally, buffered bike lanes protected by bright green plastic

pylons were recently installed on Leucadia Boulevard east of I-5 to Quail Gardens Drive. East of Quail Gardens Drive, the buffers end and the bicycle facilities transition to Class II bicycle lanes up until El Camino Real. According to the *City of Encinitas General Plan* (2003), Leucadia Boulevard is classified as a Four-Lane Major Roadway – Augmented between I-5 northbound ramps and Town Center Place and a six-Lane Prime Arterial between Town Center Place and El Camino Real.

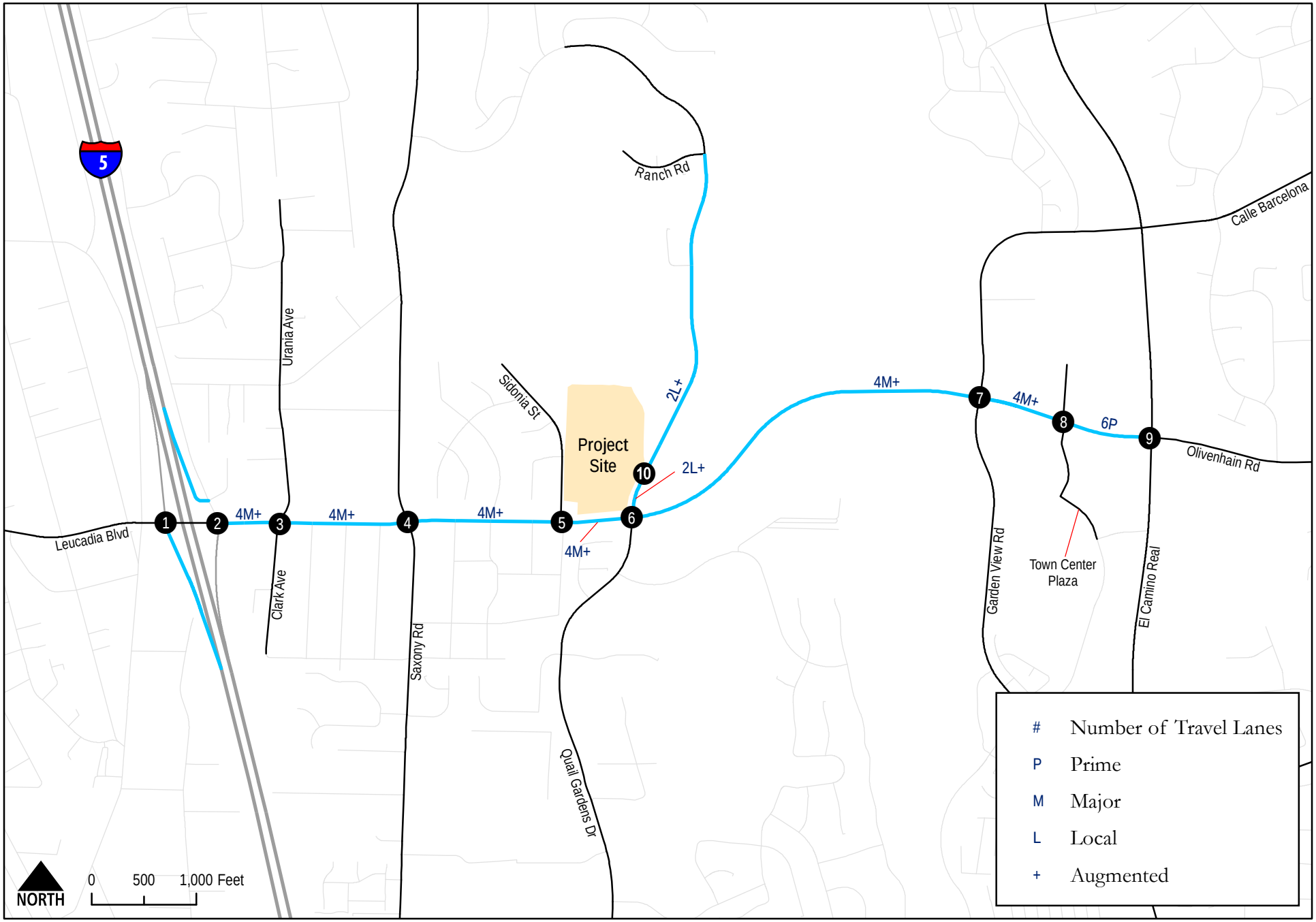
Table 4.1 provides a summary of the roadway characteristics for roadways that traverse the study area.

Table 4.1 Existing Roadway Characteristics

Roadway	From	To	Number of Lanes	Median Type	Sidewalk?	Bike lanes?	Transit Route	Posted Speed Limit
Saxony Road	Brittany Avenue	Leucadia Boulevard	1 NB / 1 SB	None	Both	None	None	30 MPH
Saxony Road	Leucadia Boulevard	Puebla Street	1 NB / 1 SB	None	Both	None	304	35 MPH
Sidonia Street	Guildford Court	Leucadia Boulevard	1 NB / 1 SB	None	Southbound Only	None	None	25 MPH
Quail Gardens Drive	Ranch Road	Leucadia Boulevard	1 NB / 1 SB	R	NB: Dirt Path SB: Paved	NB: Class II SB: Class II	None	35 MPH
El Camino Real	Calle Barcelona	Town Center Drive	3 NB / 3 NB	R	Both	NB: Class II SB: Class II	304 309	45 MPH
Leucadia Boulevard	I-5 NB Ramps	Urania Avenue	2 EB / 3 WB	R	Both	EB: Class IV WB: Class IV	None	40 MPH
Leucadia Boulevard	Urania Avenue	Saxony Road	2 EB / 2 WB	R	Both	EB: Class IV WB: Class IV	None	40 MPH
Leucadia Boulevard	Saxony Road	Quail Gardens Drive	2 EB / 2 WB	R	Both	EB: Class IV WB: Class IV	304	40 MPH
Leucadia Boulevard	Quail Gardens Drive	Garden View Road	2 EB / 2 WB	R	Eastbound Only	EB: Class II WB: Class II	304	45 MPH
Leucadia Boulevard	Garden View Road	El Camino Real	3 EB / 3 WB	R	Both	EB: Class II WB: Class II	304	45 MPH

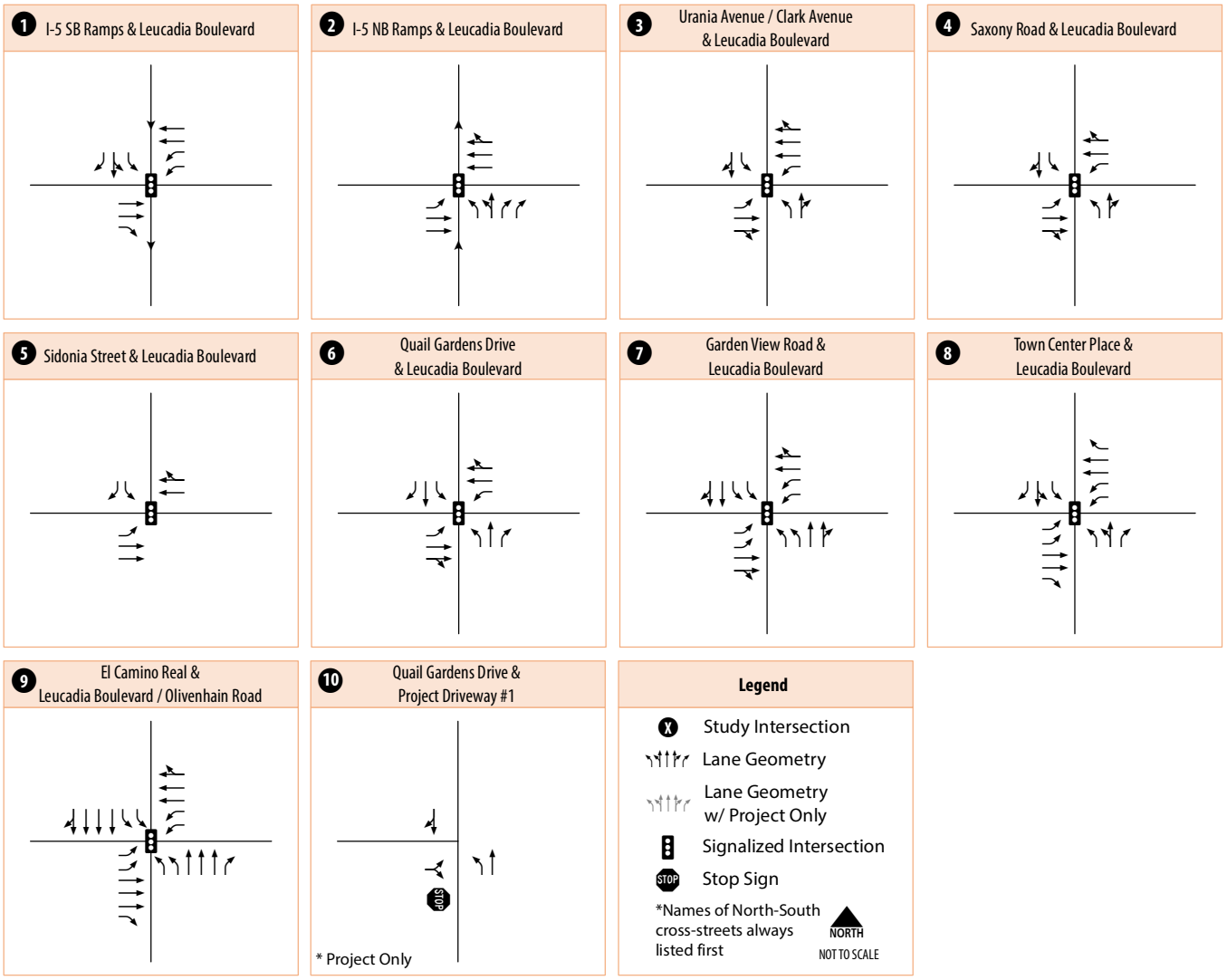
Notes:
R = Raised Median

As documented in Section 3.3, ten (10) intersections are included as part of the study area. **Figure 4.1** displays the existing functional classifications and intersection geometrics for study area roadways and intersections.



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Figure 4.1
Existing Roadway Geometrics



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Figure 4.1
Existing Intersection Geometrics

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4.2 Existing Intersection and Roadway Volumes

Figure 4.2 shows both existing daily traffic volumes for study area roadway segments and the AM/PM peak hour turning movements for the study intersections. The study area intersection traffic counts were conducted on October 24th, 2019 by National Data & Surveying Services (NDS). Traffic counts on Leucadia Boulevard appeared to be lower when compared to traffic counts from previous traffic studies completed a few years prior. Traffic counts are provided in Appendix D.

4.3 Existing Level of Service Analysis

LOS analyses under Existing conditions were conducted using the methodologies described in Chapter 2.0. Roadway segment, intersection LOS, and ramp metering analysis results are discussed below.

4.3.1 Roadway Segment Analysis

Table 4.2 displays roadway segment LOS analysis results for key study roadway segments under Existing conditions.

According to the General Plan, study roadways identified with an augmented designation have had measures implemented as a means of increasing capacity to maximize utilization of the basic lane configuration, which includes any of the following:

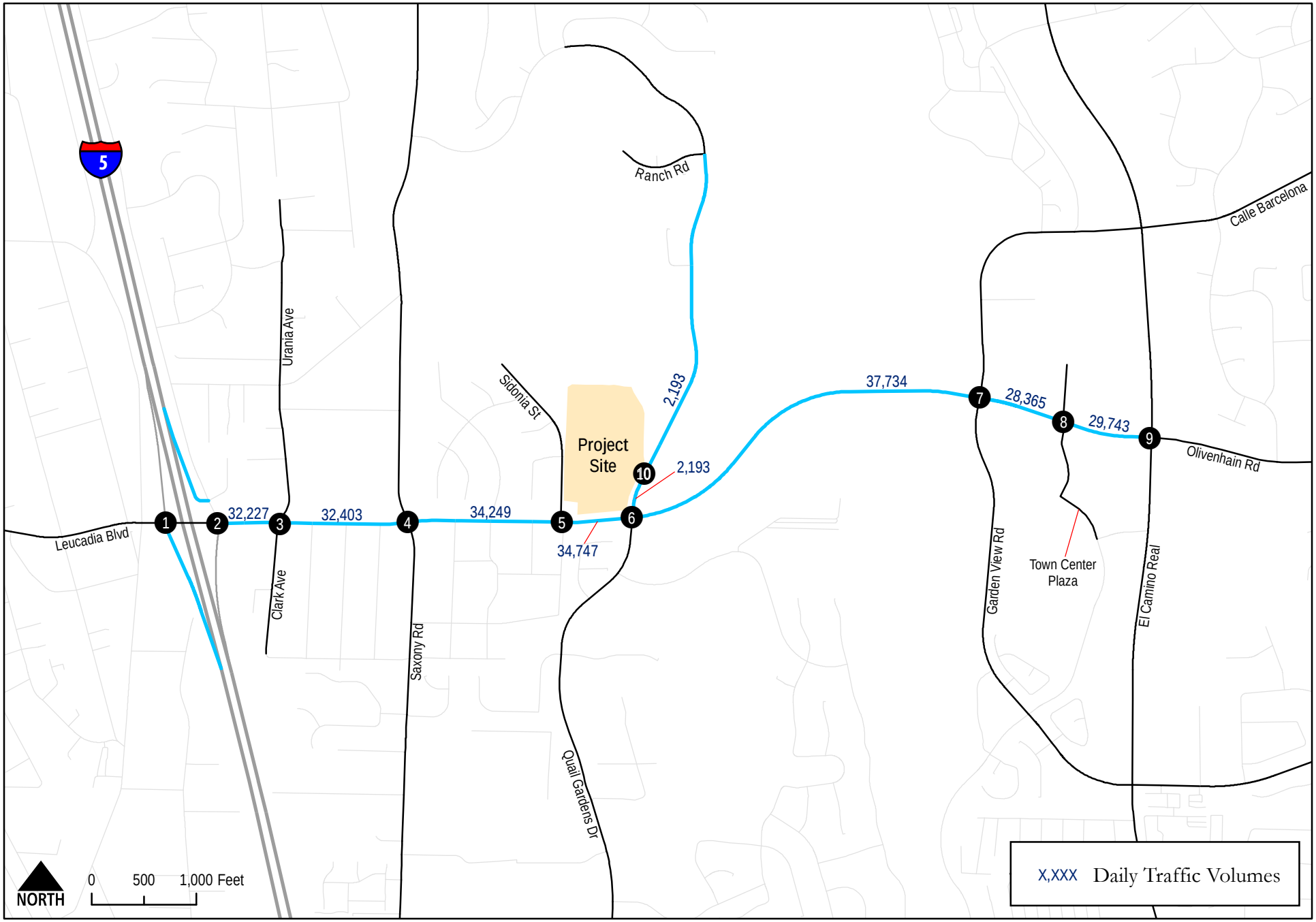
- Addition of lanes at intersections
- Expanding median to improve traffic flow and reduce side friction
- Central median for turn movements and would restrict access to the extent possible

As shown in Table 4.2, all of the study roadway segments currently operate at acceptable LOS D or better under Existing conditions.

Table 4.2 Roadway Segment Level of Service Results - Existing Conditions

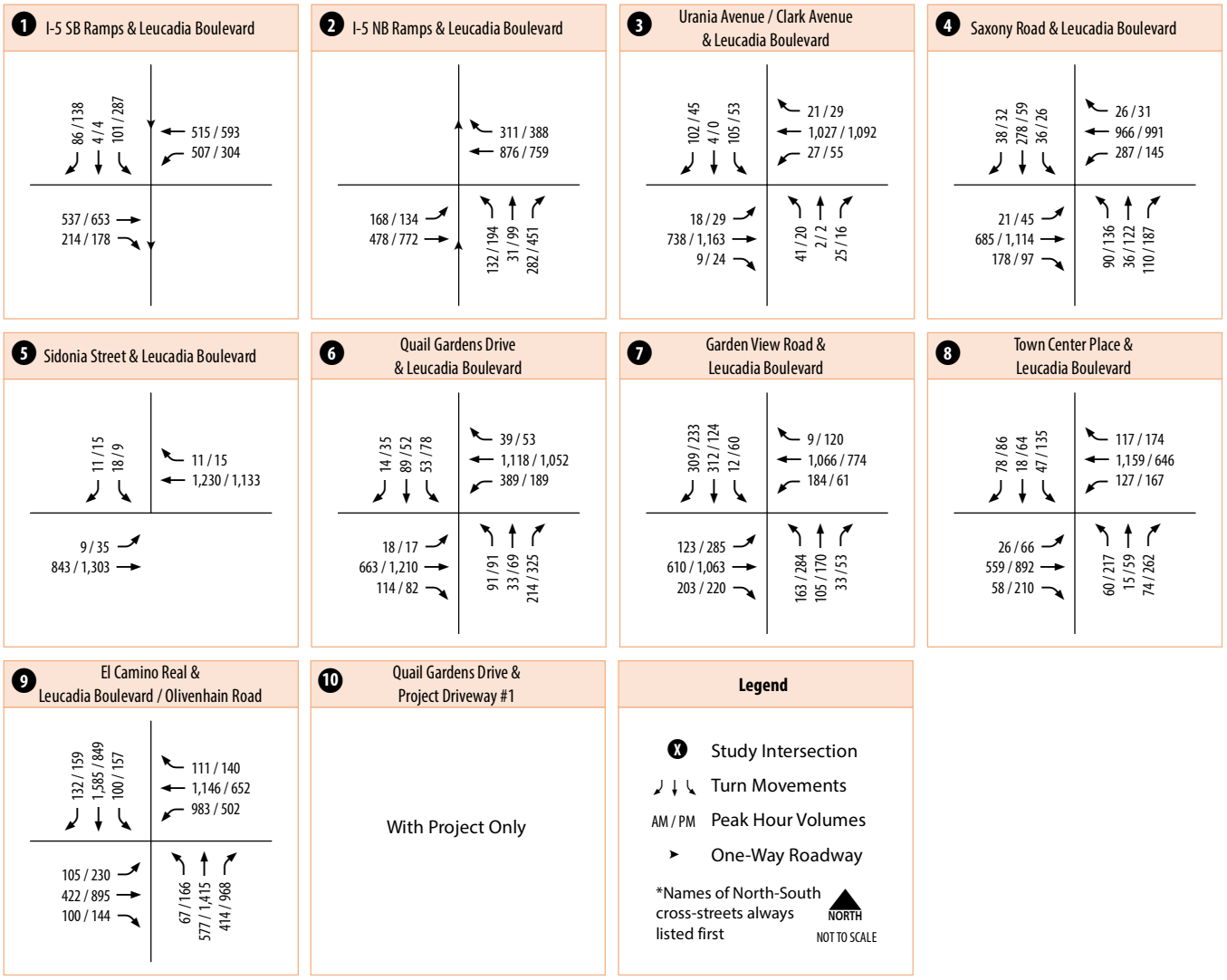
Roadway	Segment	Functional Classification	Daily Volume	LOS Threshold (LOS E)	V/C	LOS
Leucadia Boulevard	I-5 Northbound Ramps to Urania Avenue	4-Lane Major Roadway - Augmented	32,227	45,400	0.710	C
Leucadia Boulevard	Urania Avenue to Saxony Road	4-Lane Major Roadway - Augmented	32,403	45,400	0.714	C
Leucadia Boulevard	Saxony Road to Sidonia Street	4-Lane Major Roadway - Augmented	34,249	45,400	0.754	C
Leucadia Boulevard	Sidonia Street to Quail Gardens Drive	4-Lane Major Roadway - Augmented	34,747	45,400	0.765	C
Leucadia Boulevard	Quail Gardens Drive to Garden View Road	4-Lane Major Roadway - Augmented	37,734	45,400	0.831	D
Leucadia Boulevard	Garden View Road to Town Center Place	4-Lane Major Roadway - Augmented	28,365	45,400	0.625	C
Leucadia Boulevard	Town Center Place to El Camino Real	6-Lane Prime Arterial	29,743	57,000	0.522	C
Quail Gardens Drive	Ranch Road to Project Driveway #1	2-Lane Local Roadway - Augmented	2,193	20,000	0.110	C
Quail Gardens Drive	Project Driveway #1 to Leucadia Boulevard	2-Lane Local Roadway - Augmented	2,193	20,000	0.110	C

Notes:
V/C = Volume / Capacity LOS = LOS = Level of Service



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Figure 4.2
Roadway ADT
Existing Conditions



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Figure 4.2
Traffic Volumes
Existing Conditions

4.3.2 Intersection Analysis

Table 4.3 displays intersection LOS and average vehicle delay results for the key study area intersections under Existing conditions. LOS calculation worksheets for Existing conditions are provided in Appendix E.

Table 4.3 Peak Hour Intersection Level of Service Results - Existing Conditions

#	Intersection	Control Type	AM Peak Hour		PM Peak Hour	
			Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
1	I-5 Southbound Ramps / Leucadia Boulevard	Signal	10.9	B	11.3	B
2	I-5 Northbound Ramps / Leucadia Boulevard	Signal	11.7	B	18.3	B
3	Urania Avenue/Clark Avenue / Leucadia Boulevard	Signal	12.1	B	17.9	B
4	Saxony Road / Leucadia Boulevard	Signal	29.2	C	44.0	D
5	Sidonia Street / Leucadia Boulevard	Signal	1.8	A	2.0	A
6	Quail Gardens Drive / Leucadia Boulevard	Signal	32.4	C	33.0	C
7	Garden View Road / Leucadia Boulevard	Signal	75.1	**E**	81.1	**F**
8	Town Center Place / Leucadia Boulevard	Signal	16.8	B	44.4	D
9	El Camino Real / Leucadia Boulevard	Signal	166.5	**F**	98.1	**F**

Notes:
SSSC = Side-Street Stop Controlled. For SSSC intersections, the delay shown is the worst delay experienced by any of the approaches
Bold letter indicates substandard Level of Service E or F.

As shown in Table 4.3, all study area intersections currently operate at an acceptable LOS D or better during both the AM and PM peak hours under Existing conditions, with the exception of the following two (2) intersections:

- Garden View Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour. This is primarily due to the southbound through and right turn movements which experiences particularly high delay compared to all other movements at the intersection during the AM peak hour. Additionally, heavy volumes on Leucadia Boulevard, particularly the eastbound through movement also experience high delays during the PM peak hour when residents are exiting the freeway and returning home in the evening.

- El Camino Real / Leucadia Boulevard – LOS F during the AM and PM peak hours, primarily due to the heavy volume for the westbound left northbound throughs. Due to these high volumes for conflicting movements, signal green times are limited resulting in high vehicle delays.

4.3.3 Ramp Metering Analysis

Table 4.4 displays the freeway ramp metering analysis results under Existing conditions.

Table 4.4 Ramp Metering Analysis – Existing Conditions

On-Ramp	# of Lanes		Peak Hour	Demand[1] (veh/hr) per lane	Meter Rate[2] (veh/hr) per lane	Excess Demand[3] (veh/hr) per lane	Delay[4] (min)	Queue[5] (ft)	Storage Length (ft)	Excess Queue (ft)
	SOV	HOV								
I-5 SB On-Ramp @ Leucadia Blvd	2	1	AM	725	249	41	9.9	1,025	355	670
I-5 SB On-Ramp @ Leucadia Blvd	2	1	PM	486	275	0	0.0	0	355	0
I-5 NB On-Ramp @ Leucadia Blvd	1	1	PM	621	469	28	3.6	700	405	295

Notes:
SOV = Single Occupancy Vehicle; HOV = High Occupancy Vehicle.
[1] Demand is the peak hour demand expected to use the on-ramp.
[2] Meter Rate is the peak hour capacity expected to be processed through the ramp meter. This value was obtained from Caltrans.
[3] Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.
[4] Delay = (Excess Demand / Meter Rate) X 60 min/hr.
[5] Queue = (Excess Demand) X 25 ft/veh.

As shown in Table 4.4, both southbound and northbound I-5 on-ramps within the study area do not experience particularly high delays associated with ramp meters during the peak hours (over 15 minutes).

4.3.4 Traffic Collisions

Traffic collision data was provided by the City of Encinitas for the intersections of Leucadia Boulevard/Sidonia Street and Leucadia Boulevard/Quail Gardens Street for the years 2006 till 2020. Between 2006 and 2020, there have been a total of 24 collisions reported at the Leucadia Boulevard/Sidonia Street intersection, with the highest number occurring in 2018 with six (6) reported collisions. Most of these collisions were vehicle related with the primary collision factor (PCF) being vehicles traveling at unsafe speeds. Additionally, the Leucadia Boulevard/Quail Gardens Drive intersections had a total of 41 collisions reported between 2010 and 2020. Of those collisions, the highest number occurred in 2012 with 7 reported collisions. The primary collision factors of the reported collisions at Leucadia Boulevard/Quail Gardens Drive were vehicles traveling at unsafe speeds, and all collisions involved a vehicle, and one collision involved a pedestrian.

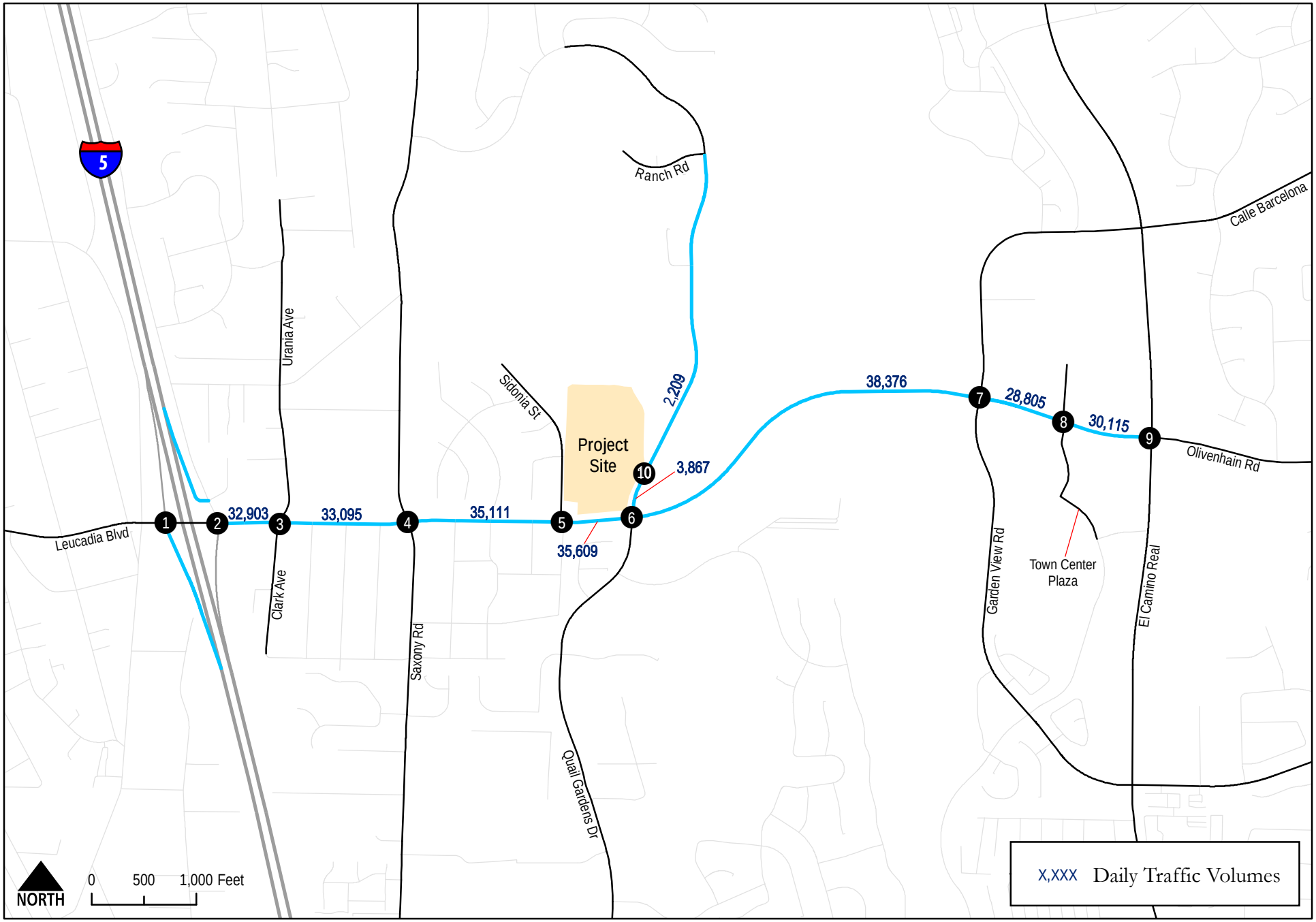
It is important to note that it is possible that the number of collisions are higher than what has been reported at these two intersections because some collisions might have gone unreported and a police report was never filed.

4.4 Existing with Project Roadway Network and Traffic Volumes

Roadway and intersection geometrics under the Existing with Project conditions were assumed to be identical to existing geometrics (displayed in Figure 4.1) with the addition of the following project driveway:

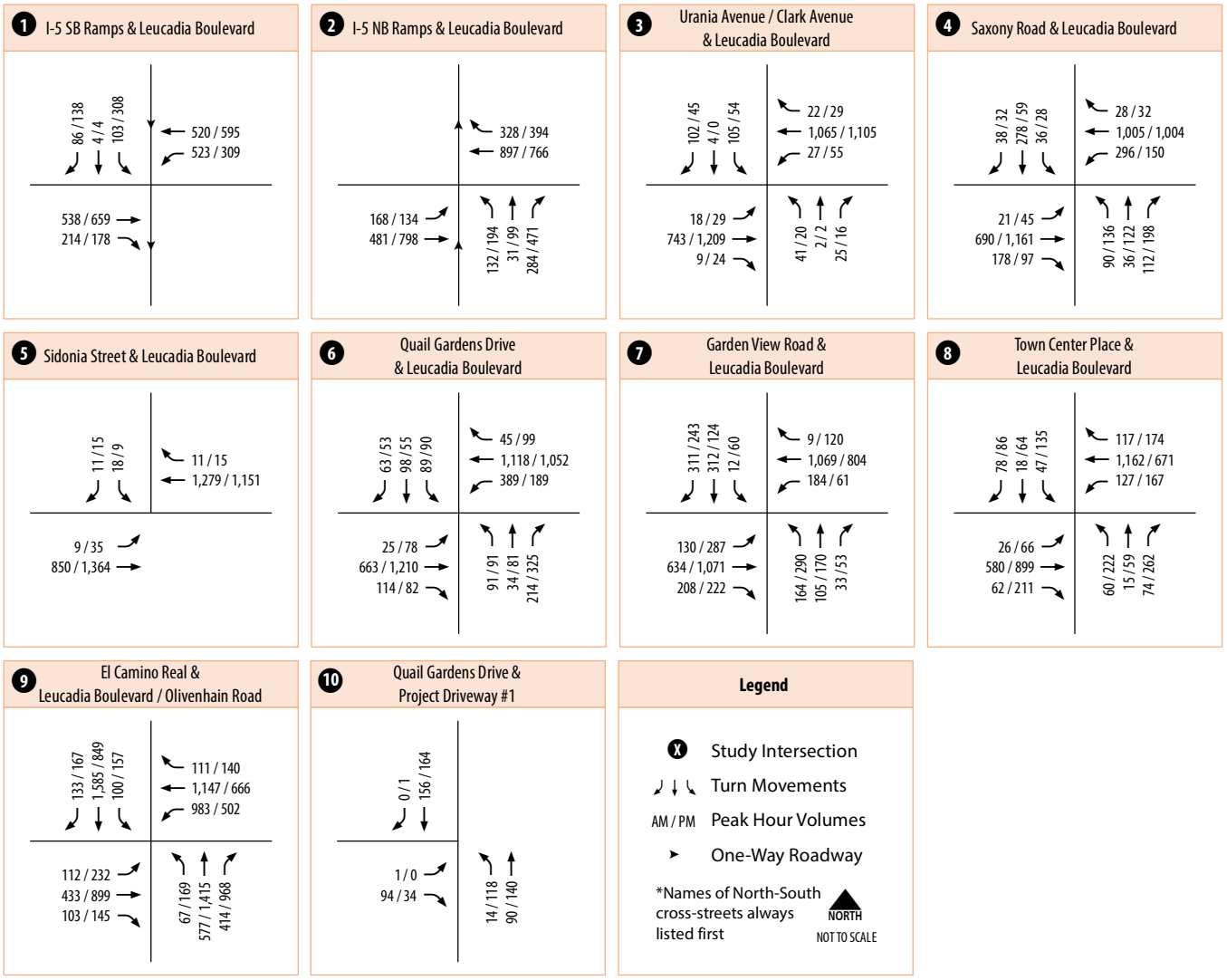
- Quail Gardens Drive / Project Driveway #1 – This driveway is the existing flower mart driveway and would be maintained for the Proposed Project. It is located approximately 400 feet north of Leucadia Boulevard and would allow for full-access. This is an unsignalized intersection with Quail Gardens Drive as uncontrolled and the Project Driveway being stop controlled. This driveway would include one inbound and one outbound lane.

Existing with Project traffic volumes were derived by combining the existing traffic volumes (displayed in Figure 4.2) and the project trip assignment volumes (displayed in Figure 3.3). Daily roadway and peak hour intersection volumes for this scenario are displayed in **Figure 4.3**.



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Figure 4.3
Roadway ADT
Existing with Project Conditions



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Figure 4.3
Traffic Volumes
Existing with Project Conditions

4.5 Existing with Project Traffic Conditions

Analyses were conducted using the methodologies described in Chapter 2.0. Roadway segment, intersection LOS, and ramp metering analysis results are discussed below.

4.5.1 Roadway Segment Analysis

Table 4.5 displays the LOS analysis results for key study area roadway segments under Existing with Project.

As shown in Table 4.5, similar to existing conditions, all study area roadway segments will continue to operate at acceptable LOS D or better under Existing with Project conditions.

Table 4.5 Roadway Segment Level of Service Results - Existing with Project Conditions

Roadway	Segment	Functional Classification	ADT w/ Project	LOS Threshold (LOS E)	V/C	LOS	LOS w/o Project	ΔV/C	SE?
Leucadia Boulevard	I-5 Northbound Ramps to Urania Avenue	4-Lane Major Roadway - Augmented	32,903	45,400	0.725	C	C	0.015	N
Leucadia Boulevard	Urania Avenue to Saxony Road	4-Lane Major Roadway - Augmented	33,095	45,400	0.729	C	C	0.015	N
Leucadia Boulevard	Saxony Road to Sidonia Road	4-Lane Major Roadway - Augmented	35,111	45,400	0.773	C	C	0.019	N
Leucadia Boulevard	Sidonia Road to Quail Gardens Drive	4-Lane Major Roadway - Augmented	35,609	45,400	0.784	C	C	0.019	N
Leucadia Boulevard	Quail Gardens Drive to Garden View Road	4-Lane Major Roadway - Augmented	38,376	45,400	0.845	D	D	0.014	N
Leucadia Boulevard	Garden View Road to Town Center Place	4-Lane Major Roadway - Augmented	28,805	45,400	0.634	C	C	0.010	N
Leucadia Boulevard	Town Center Place to El Camino Real	6-Lane Prime Arterial	30,115	57,000	0.528	C	C	0.007	N
Quail Gardens Drive	Ranch Road to Project Driveway #1	2-Lane Local Roadway - Augmented	2,209	20,000	0.110	C	C	0.001	N
Quail Gardens Drive	Project Driveway #1 to Leucadia Boulevard	2-Lane Local Roadway - Augmented	3,867	20,000	0.193	C	C	0.084	N

Notes:
V/C = Volume / Capacity
LOS = Level of Service
SE? = Substantial Effect?

4.5.2 Intersection Analysis

Table 4.6 displays intersection LOS and average vehicle delay results under Existing with Project conditions. LOS calculation worksheets for Existing with Project conditions are provided in Appendix F.

Table 4.6 Peak Hour Intersection Level of Service Results - Existing with Project Conditions

#	Intersection	Control Type	AM Peak Hour w/ Project		PM Peak Hour w/ Project		Delay w/o Project (sec) AM/PM	LOS w/o Project AM/PM	Change in Delay (sec) AM/PM	SE?
			Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS				
1	I-5 Southbound Ramps / Leucadia Boulevard	Signal	11.0	B	11.5	B	10.9 / 11.3	B / B	0.1 / 0.2	N
2	I-5 Northbound Ramps / Leucadia Boulevard	Signal	11.6	B	18.4	B	11.7 / 18.3	B / B	-0.1 / 0.1	N
3	Urania Avenue/Clark Avenue / Leucadia Boulevard	Signal	12.1	B	18.5	B	12.1 / 17.9	B / B	0.0 / 0.6	N
4	Saxony Road / Leucadia Boulevard	Signal	29.8	C	45.4	D	29.2 / 44.0	C / D	0.6 / 1.4	N
5	Sidonia Street / Leucadia Boulevard	Signal	1.8	A	1.9	A	1.8 / 2.0	A / A	0.0 / -0.1	N
6	Quail Gardens Drive / Leucadia Boulevard	Signal	32.9	C	34.5	C	32.4 / 33.0	C / C	0.5 / 1.5	N
7	Garden View Road / Leucadia Boulevard	Signal	75.5	**E**	83.0	**F**	75.1 / 81.1	**E / F**	0.4 / 1.9	N
8	Town Center Place / Leucadia Boulevard	Signal	16.7	B	45.0	D	16.8 / 44.4	B / D	-0.1 / 0.6	N
9	El Camino Real / Leucadia Boulevard	Signal	166.1	**F**	97.1	**F**	166.5 / 98.1	**F / F**	-0.4 / -1.0	N
10	Quail Gardens Drive / Project Driveway #1	SSSC	10.1	B	9.8	A	N/A	N/A	10.1 / 9.8	N

Notes:
SSSC = Side-Street Stop Controlled. For SSSC intersections, the delay shown is the worst delay experienced by any of the approaches
N/A = Not Applicable. Project Driveway #1 and #2 does not exist under this scenario.
Bold letter indicates substandard Level of Service E or F.
Bold and underlined indicates substantial effect.
SE? = Substantial Effect?

As shown in Table 4.6, all of the study intersection would continue to operate at acceptable LOS D or better, during both the AM and PM peak hours, with the addition of Project traffic, with the exception of the following two (2) intersections:

- Garden View Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour
- El Camino Real / Leucadia Boulevard – LOS F during the AM and PM peak hours

Based on the measures of substantial effect outlined in Section 2.5, because the traffic associated with the Proposed Project would not add 2 seconds or more of additional delay to an intersection operating at LOS E or F, the proposed project would not create a substantial effect to these intersections.

Additionally, the following study intersection with substandard LOS would improve in operations with addition of Proposed Project traffic:

- El Camino Real / Leucadia Boulevard – Delay improves by 0.4 seconds in the AM peak hour and 1.0 seconds in the PM Peak hour. Intersection LOS is calculated as a weighted average based on delay per intersection turning movement. Thus, weighted averages would be reduced when traffic is added to a movement with high volume but really low delay, such as movements on Leucadia Boulevard or El Camino Real, but would increase when traffic is added to low volume movements with substantially high delays. Since the Proposed Project adds traffic to favorable east and west bound directions, the calculated LOS improves from existing conditions. Furthermore, the project traffic would not be added to critical movements (i.e. movements with high delays) and therefore, would not increase the delay for those movements. Additionally, excess queuing is anticipated to occur for the westbound left-turn pocket during the PM peak hour, however, Proposed Project does not contribute to this excess queue.

4.5.3 Ramp Metering Analysis

Table 4.7 displays the freeway ramp metering analysis results under Existing with Project conditions.

As shown in Table 4.7, both southbound and northbound I-5 on-ramps within the study area do not experience particularly high delays associated with ramp meters during the peak hours (over 15 minutes) with addition of project traffic.

Table 4.7 Ramp Metering Analysis – Existing with Project Conditions

On-Ramp	# of Lanes		Peak Hour	Demand[1] (veh/hr) per lane	Meter Rate[2] (veh/hr) per lane	Excess Demand[3] (veh/hr) per lane	Delay[4] (min)	Queue[5] (ft)	Storage Length (ft)	Excess Queue (ft)	Delay w/o Project (min)	Δ Delay (min)	SE?
	SOV	HOV											
I-5 SB On-Ramp @ Leucadia Blvd	2	1	AM	741	249	47	11.3	1,175	355	820	9.9	1.4	N
I-5 SB On-Ramp @ Leucadia Blvd	2	1	PM	491	275	0	0.0	0	355	0	0.0	0.0	N
I-5 NB On-Ramp @ Leucadia Blvd	1	1	PM	627	469	33	4.2	825	405	420	3.6	0.6	N

Notes:
SOV = Single Occupancy Vehicle; HOV = High Occupancy Vehicle.
SE? = Substantial Effect?
[1] Demand is the peak hour demand expected to use the on-ramp.
[2] Meter Rate is the peak hour capacity expected to be processed through the ramp meter. This value was obtained from Caltrans.
[3] Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.
[4] Delay = (Excess Demand / Meter Rate) X 60 min/hr.
[5] Queue = (Excess Demand) X 25 ft/veh.

4.6 Substantial Effects and Off-Site Improvement Recommendations to Accommodate Project Traffic

Based upon the measures of substantial effect presented in Section 2.5 of this report, the addition of Proposed Project traffic would not create a substantial effect to any study area roadway segments, intersections, or freeway on ramps.

Roadways

No substantial effects were identified. Therefore, no off-site improvements are recommended.

Intersection

No substantial effects were identified. Therefore, no off-site improvements are recommended.

Ramp Meters

No substantial effects were identified. Therefore, no off-site improvements are recommended.

5.0 Near-Term Traffic Conditions

This section provides an analysis of Near-Term Base conditions both with and without the Proposed Project. The scenarios analyzed in this section include:

- Near-Term Base
- Near-Term Base with Proposed Project

5.1 Cumulative Project Traffic

The following twelve (12) projects were identified by the City of Encinitas staff as cumulative projects, since they are anticipated to contribute traffic within the project study area:

1. *Sanderling Waldorf School* – This project is located at 749 Mays Hollow Lane in the City of Encinitas and it proposes a private grade school. This project is anticipated to generate 858 average daily trips with 243 trips (134-in / 109-out) during the AM peak hour and 162 trips (76-in / 86-out) during the PM peak hour.

2. *O'Brien / Mobil Station Car Wash* – This project is located at 310 Encinitas Boulevard in the City of Encinitas and it proposes a new car wash in addition to an existing gas station and expansion of its retail area. This project is anticipated to generate no average daily trips with 14 trips (7-in / 7-out) during the AM peak hour and 14 trips (7-in / 7-out) during the PM peak hour.

3. *Requeza Residential Subdivision* – This project is located at 710 Requeza Street in the City of Encinitas and it proposes to construct thirteen (13) single-family residential units. This project is currently under construction and is anticipated to generate 130 average daily trips with 10 trips (3-in / 7-out) during the AM peak hour and 13 trips (9-in / 4-out) during the PM peak hour.

4. *Colrich Residential Subdivision* - This project is located at 712 Clark Avenue in the City of Encinitas and it proposes to construct thirteen (13) single-family residential units. This project is anticipated to generate 130 average daily trips with 10 trips (3-in / 7-out) during the AM peak hour and 13 trips (9-in / 4-out) during the PM peak hour.

5. *Tentative Parcel Map, Case No. 12-188* – This project is located at 604 Camino De Orchidia and it proposes to subdivide an existing lot into 4 parcels to develop 4 single family homes. The project is anticipated to generate 40 average daily trips with 3 trips (1-in / 2-out) during the AM peak hour and 4 trips (3-in / 1-out) during the PM peak hour.

6. *Leucadia Blvd. TM (Specimen House) #16-282* – This project is located at 764 and 782 Leucadia Boulevard and it proposes to demolish existing greenhouse operation and create 13 new residential lots and construct 13 new single-family homes. The project anticipates to generate 130 average daily trips with 11 trips (3-in / 8-out) during the AM peak hour and 13 trips (9-in / 4-out) during the PM peak hour.

7. *Ocean View Development* – This project is located south of Encinitas Boulevard, directly across from Delphinium Street in the City of Encinitas. It proposes to develop 69 assisted living beds and 144 independent living units. The project anticipates to generate 679 average daily trips with 39 trips (16-in / 23-out) during the AM peak hour and 52 trips (27-in / 25-out) during the PM peak hour.

8. *Encinitas Beach Resort* – This project is located on the west side of the T-intersection at Highway 101 and La Costa Avenue in the City of Encinitas. It proposed to develop a 130-room hotel with 5,827 square foot restaurant and bar. The project anticipates to generate 1,972 average daily trips with 127 trips (69-in / 59-out) during the AM peak hour and 148 trips (74-in / 74-out) during the PM peak hour.

9. *Surfer's Point Hotel* – This project is located on the northeast corner of North Coast Highway 101 and La Costa Avenue in the City of Encinitas. It proposes to develop a 24-unite timeshare hotel resort. The project anticipates to generate 250 average daily trips with 15 trips (9-in / 6-out) during the AM peak hour and 20 trips (12-in / 8-out) during the PM peak hour.

10. *516 La Costa Development* – This project is located at 516 La Costa Avenue in the City of Encinitas. It proposes to develop a 17-room hotel with 3,089 square foot restaurant. The project anticipates to generate 640 average daily trips with 51 trips (27-in / 24-out) during the AM peak hour and 46 trips (28-in / 18-out) during the PM peak hour.

11. *Skyloft* – This project is located on the north side of Sky Loft Road between Piraeus Street and Burgundy Road within the city of Encinitas. It proposes to construct seventeen (17) single-family residential units. This project is anticipated to generate 170 average daily trips with 14 trips (4-in / 10-out) during the AM peak hour and 17 trips (12-in / 5-out) during the PM peak hour.

12. *Weston Subdivision Project* – This project is located on the north side of La Costa Avenue between Sheridan Road and Interstate-5 southbound ramps within the city of Encinitas. It proposes to construct 46 single-family residential units. This project is anticipated to generate 460 average daily trips with 37 trips (11-in / 26-out) during the AM peak hour and 46 trips (32-in / 14-out) during the PM peak hour.

The traffic generated from the projects listed above was included in the Near-Term Base scenario.

Table 5.1 displays trip generation for the cumulative projects described above. The respective trip distribution and trip assignment assumptions for each cumulative project was obtained from the either City of Encinitas staff input or from their respective traffic impact study, which were provided by City of Encinitas staff. Relevant excerpts from the different sources of information regarding cumulative projects are provided in Appendix G.

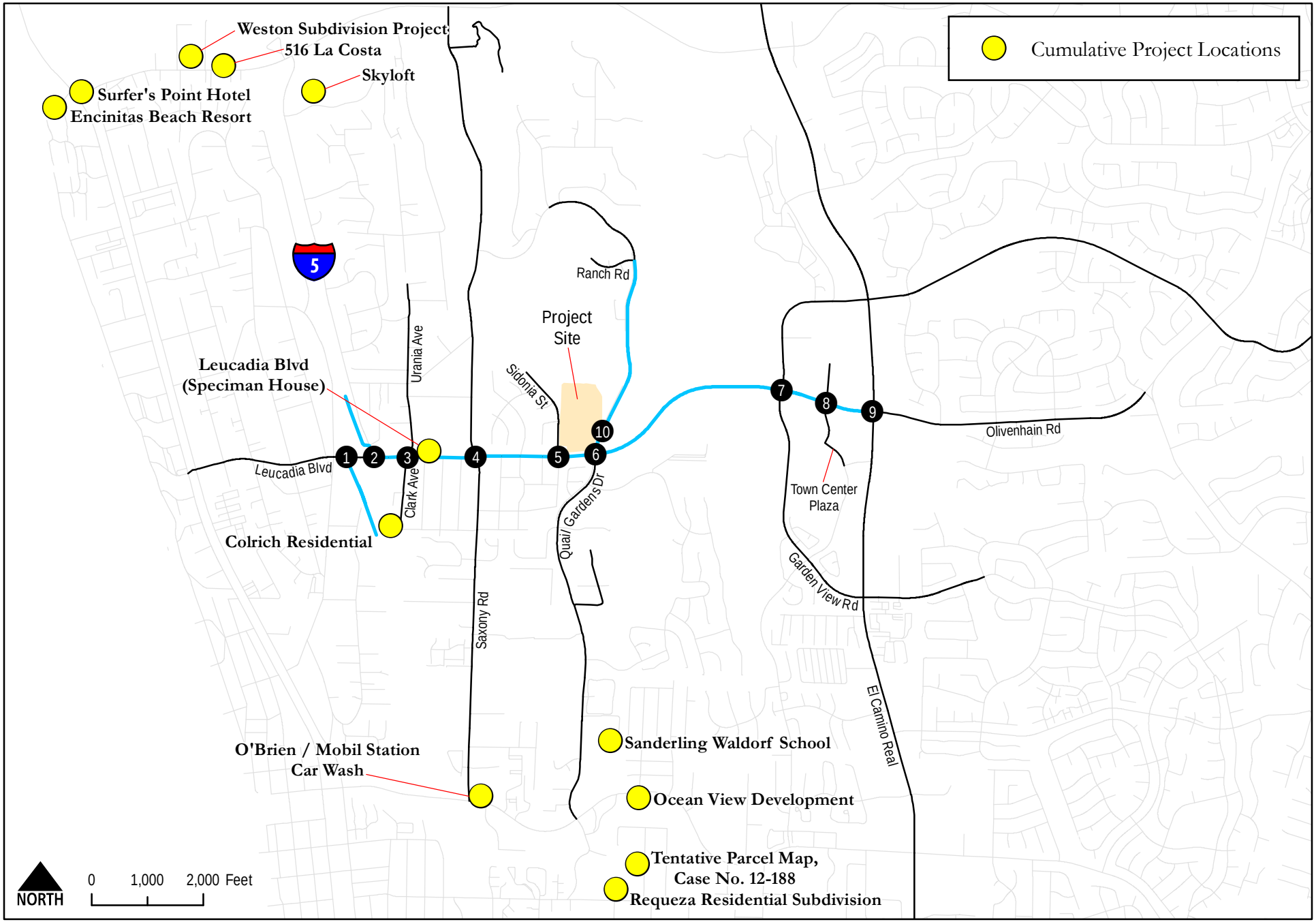
Table 5.1 Cumulative Projects Trip Generation

Cumulative Project	Land Use	Daily Trips	AM Peak Hour (In / Out)	PM Peak Hour (In / Out)
Sanderling Waldorf School[1]	Private Grade School	858	243 (134-in / 109-out)	162 (76-in / 86-out)
O'Brien / Mobil Station Car Wash[2]	Car Wash Addition to already existing gas station. Retail square-footage increase	N/A	14 (7-in / 7-out)	14 (7-in / 7-out)
Requeza Residential Subdivision[3]	Residential	130	10 (3-in / 7-out)	13 (9-in / 4-out)
Colrich Residential Subdivision[4]	Residential	130	10 (3-in / 7-out)	13 (9-in / 4-out)
Tentative Parcel Map, Case No. 12-188[5]	Residential	40	3 (1-in / 2-out)	4 (3-in / 1-out)
Leucadia Blvd (Speciman House)[2]	Residential	130	11 (3-in / 8-out)	13 (9-in / 4-out)
Ocean View Development[6]	Assisted Living/Senior Adult Housing	679	39 (16-in / 23-out)	52 (27-in / 25-out)
Encinitas Beach Resort[2]	Hotel and Restaurant	1,972	127 (69-in / 59-out)	148 (74-in / 74-out)
Surfer's Point Hotel[7]	Hotel	250	15 (9-in / 6-out)	20 (12-in / 8-out)
516 La Costa Development[8]	Hotel and Restaurant	640	51 (27-in / 24-out)	46 (28-in / 18-out)
Skyloft[2]	Residential	170	14 (4-in / 10-out)	17 (12-in / 5-out)
Weston Subdivision Project[2]	Residential	460	37 (11-in / 26-out)	46 (32-in / 14-out)
Cumulative Total		5,459	**574 (287-in / 288-out)**	**548 (298-in / 250-out)**

Notes:
[1] Trip Generation obtained from Sanderling Waldorf School TIS - by LLG, Engineers. September 2016.
[2] Trip Generation obtained from (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region – by SANDAG, April 2002.
[3] Trip Generation obtained from Requeza SM LLC TIS – by LOS Engineering, Inc. August 2016
[4] Trip Generation obtained from 712 Clark Avenue Draft TIA – by LOS Engineering, Inc. June 2015.
[5] Trip Generation obtained from Sanderling Waldorf TIS – by LLG, Engineers. October 2016.
[6] Trip Generation obtained from Ocean View Development TIS – by Trames Solutions, Inc. July 2017.
[7] Trip Generation obtained from Surfer's Point TIA – by LOS Engineering, Inc. April 2019
[8] Trip Generation obtained from 516 La Costa Development TAS – by Mizuta Traffic Consulting. May 2018

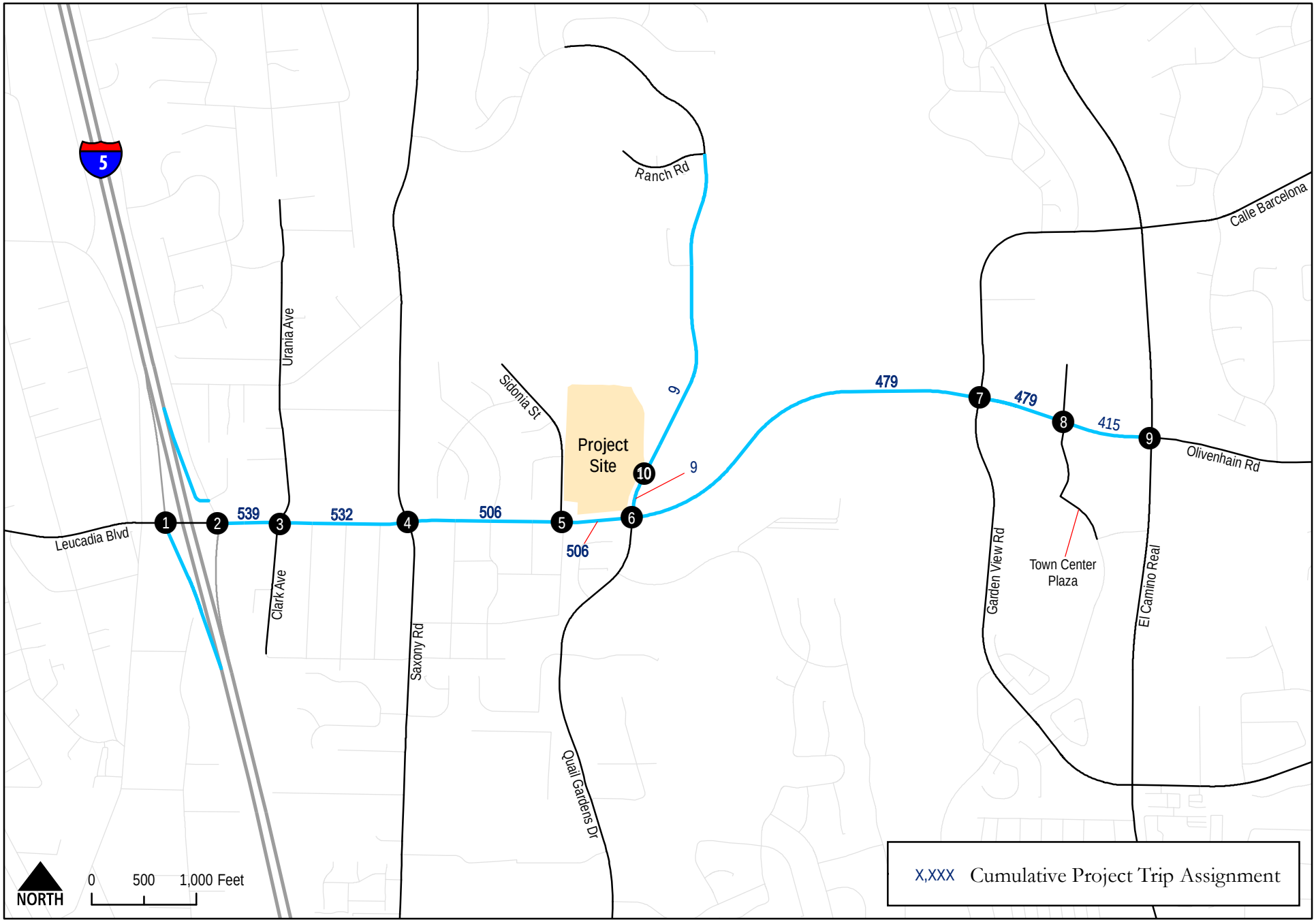
As shown, the cumulative projects are anticipated to generate 5,459 daily trips, with 574 trips during the AM peak hour and 548 trips during the PM peak hour and will be dispersed throughout the City of Encinitas and beyond the Proposed Project's study area.

Figure 5.1 displays the location of the cumulative projects, and **Figure 5.2** displays the cumulative project trip assignment.



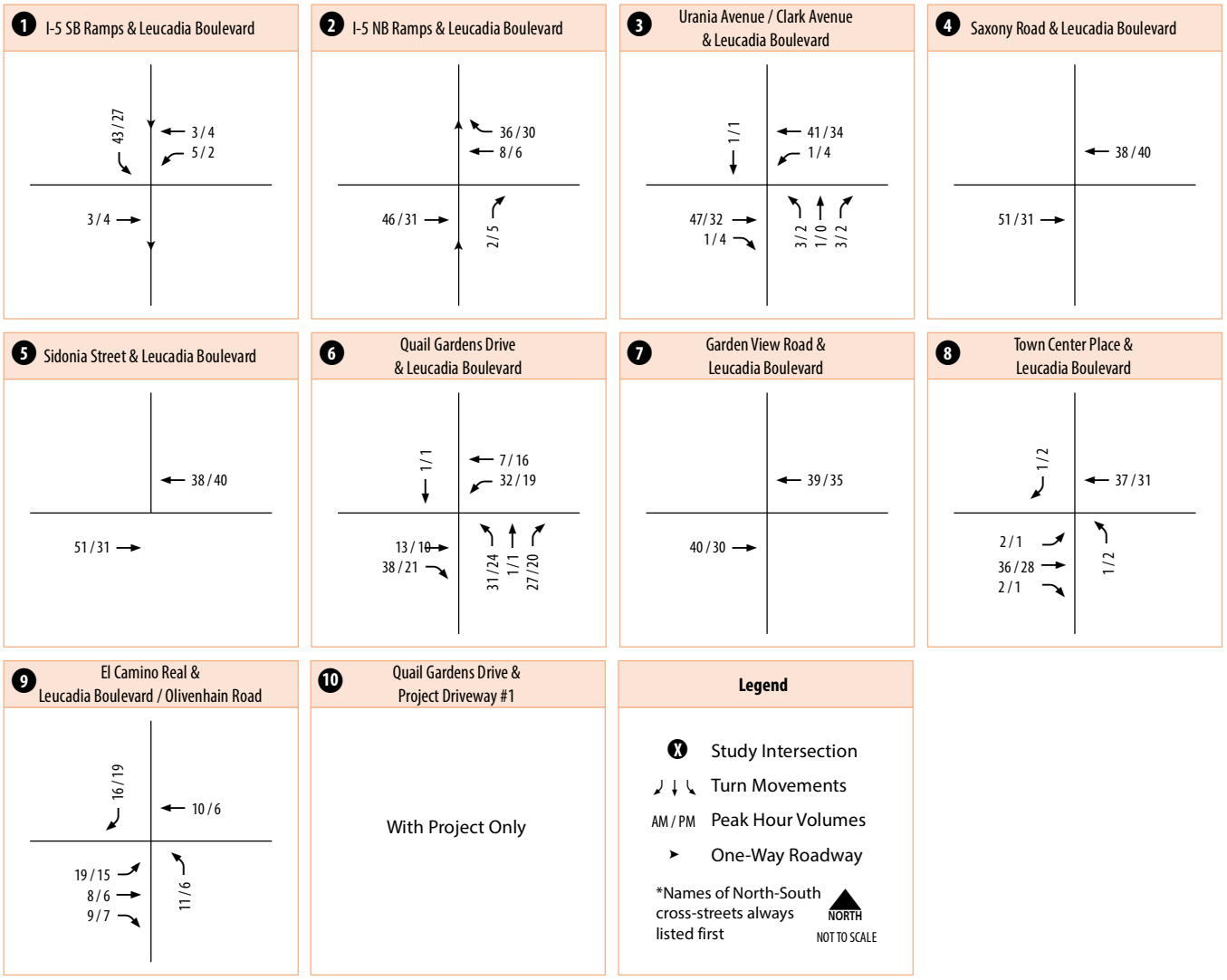
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Figure 5.1
Cumulative Project Locations



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Figure 5.2
Roadway ADT
Cumulative Project Trip Assignment



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Vehicle Operations and Queuing Analysis
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Figure 5.2
Cumulative Project Trip Assignment

5.2 Near-Term Base Roadway Network and Traffic Volumes

The Near-Term Base roadway and intersection geometrics for the study area were assumed to be identical to the Existing Conditions geometrics, as previously shown in Figure 4.1, with the exception of the following intersection:

- Quail Gardens Drive / Leucadia Boulevard – Modify signal convert northbound and southbound split phasing to protected left-turn phases. Signal timings optimized for Near-Term Base Conditions. The City of Encinitas has received a Highway Safety Improvement Plan (HSIP) Grant to fund this improvement. Under the grant, the lane configurations at this intersection remain the same as Existing Conditions, and only signal modifications were assumed.

The Near-Term Base scenario traffic volumes were derived by adding the additional trips generated by the cumulative projects listed in Section 5.1 (Figure 5.2) to the existing traffic volumes (Figure 4.2). **Figure 5.3** displays the average daily roadway and peak hour intersection volumes for the study roadway segments and intersections under the Near-Term Base conditions.

5.3 Near-Term Base Traffic Conditions

LOS analyses for Near-Term Base conditions were conducted using the methodologies described in Chapter 2.0. Roadway segment, intersection LOS and ramp meter analysis results are discussed separately below.

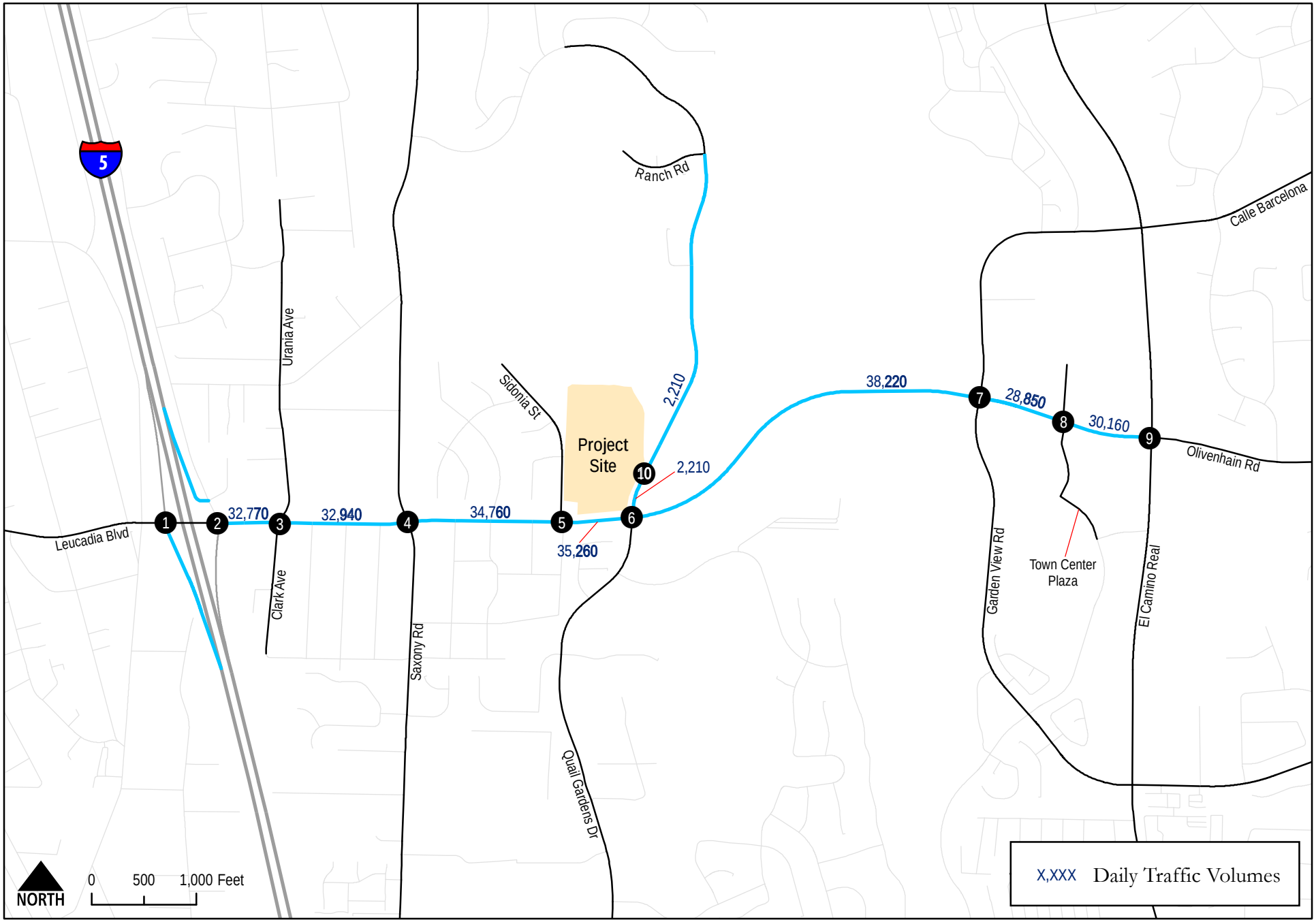
5.3.1 Roadway Segment Analysis

Table 5.2 displays the LOS analysis results for key roadway segments under Near-Term Base conditions. As shown, all of the study roadway segments would operate at acceptable LOS D or better under Near-Term Base conditions.

Table 5.2 Roadway Segment Level of Service Results – Near-Term Base Conditions

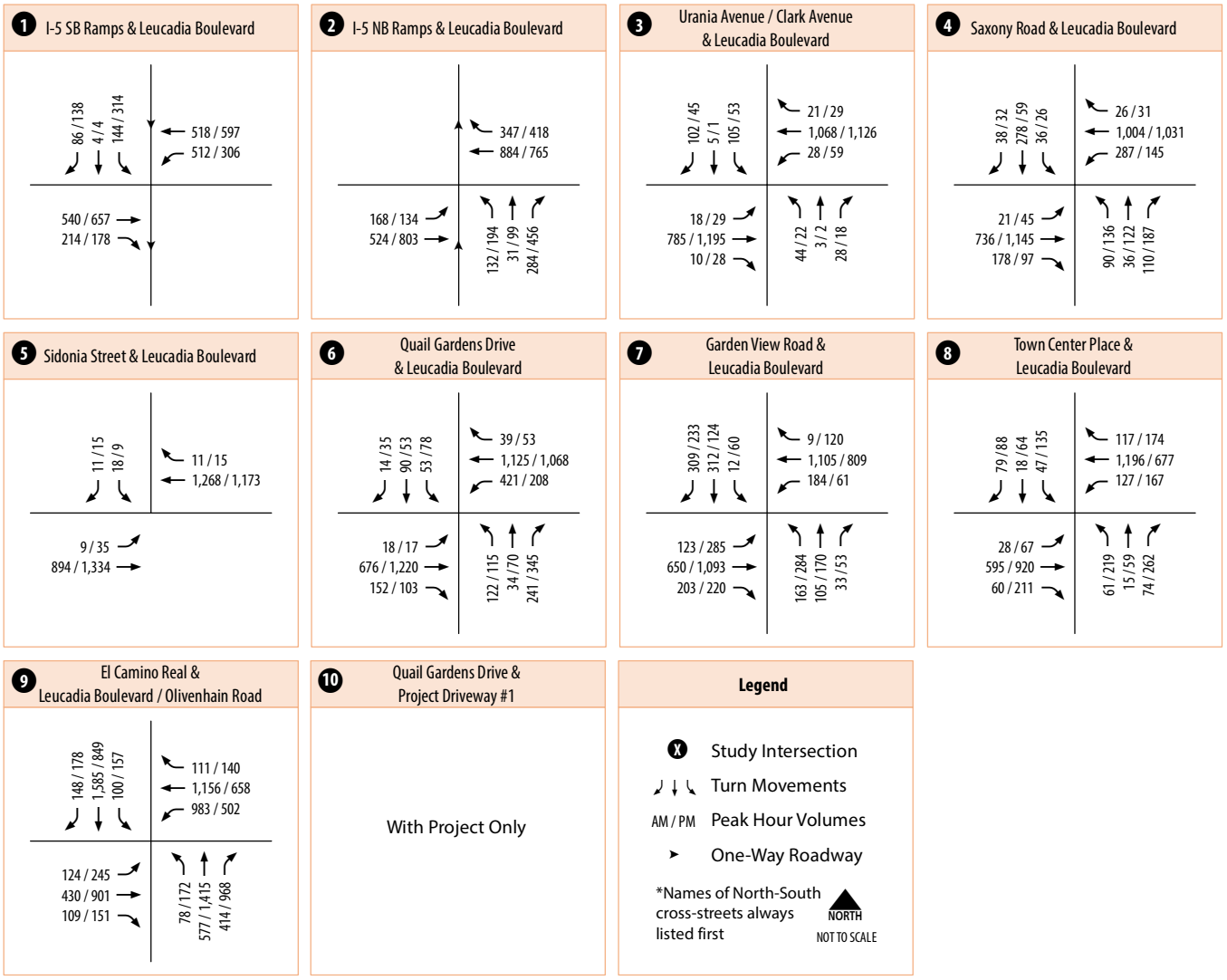
Roadway	Segment	Functional Classification	Daily Volume	LOS Threshold (LOS E)	V/C	LOS
Leucadia Boulevard	I-5 Northbound Ramps to Urania Avenue	4-Lane Major Roadway - Augmented	32,770	45,400	0.722	C
Leucadia Boulevard	Urania Avenue to Saxony Road	4-Lane Major Roadway - Augmented	32,940	45,400	0.726	C
Leucadia Boulevard	Saxony Road to Sidonia Road	4-Lane Major Roadway - Augmented	34,760	45,400	0.766	C
Leucadia Boulevard	Sidonia Road to Quail Gardens Drive	4-Lane Major Roadway - Augmented	35,260	45,400	0.777	C
Leucadia Boulevard	Quail Gardens Drive to Garden View Road	4-Lane Major Roadway - Augmented	38,220	45,400	0.842	D
Leucadia Boulevard	Garden View Road to Town Center Place	4-Lane Major Roadway - Augmented	28,850	45,400	0.635	C
Leucadia Boulevard	Town Center Place to El Camino Real	6-Lane Prime Arterial	30,160	57,000	0.529	C
Quail Gardens Drive	Ranch Road to Project Driveway #1	2-Lane Local Roadway - Augmented	2,210	20,000	0.111	C
Quail Gardens Drive	Project Driveway #1 to Leucadia Boulevard	2-Lane Local Roadway - Augmented	2,210	20,000	0.111	C

Notes:
V/C = Volume / Capacity
LOS = Level of Service



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Figure 5.3
Roadway ADT
Near-Term Year Base Conditions



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Figure 5.3
Traffic Volumes
Near-Term Year Base Conditions

5.3.2 Intersection Analysis

Table 5.3 displays intersection LOS and average vehicle delay results for the key study area intersections under Near-Term Base conditions. LOS calculation worksheets for Near-Term Base conditions are provided in Appendix H.

Table 5.3 Peak Hour Intersection Level of Service Results - Near-Term Base Conditions

#	Intersection	Control Type	AM Peak Hour		PM Peak Hour	
			Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
1	I-5 Southbound Ramps / Leucadia Boulevard	Signal	11.2	B	11.5	B
2	I-5 Northbound Ramps / Leucadia Boulevard	Signal	11.4	B	18.3	B
3	Urania Avenue/Clark Avenue / Leucadia Boulevard	Signal	12.5	B	18.3	B
4	Saxony Road / Leucadia Boulevard	Signal	30.6	C	46.7	D
5	Sidonia Street / Leucadia Boulevard	Signal	1.8	A	1.9	A
6	Quail Gardens Drive / Leucadia Boulevard	Signal	49.4	D	40.9	D
7	Garden View Road / Leucadia Boulevard	Signal	74.9	**E**	84.1	**F**
8	Town Center Place / Leucadia Boulevard	Signal	16.8	B	48.1	D
9	El Camino Real / Leucadia Boulevard	Signal	165.7	**F**	97.4	**F**

Notes:
SSSC = Side-Street Stop Controlled. For SSSC intersections, the delay shown is the worst delay experienced by any of the approaches
Bold letter indicates substandard Level of Service E or F.

As shown in Table 5.3, all study area intersections would operate at an acceptable LOS D or better during both the AM and PM peak hours under Near-Term Base conditions, with the exception of the following two (2) intersections:

- Garden View Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour
- El Camino Real / Leucadia Boulevard – LOS F during the AM and PM peak hours

5.3.3 Ramp Metering Analysis

Table 5.4 displays the freeway ramp metering analysis results under Near-Term Base Year conditions.

Table 5.4 Ramp Metering Analysis – Near-Term Base Conditions

On-Ramp	# of Lanes		Peak Hour	Demand[1] (veh/hr) per lane	Meter Rate[2] (veh/hr) per lane	Excess Demand[3] (veh/hr) per lane	Delay[4] (min)	Queue[5] (ft)	Storage Length (ft)	Excess Queue (ft)
	SOV	HOV								
I-5 SB On-Ramp @ Leucadia Blvd	2	1	AM	730	249	43	10.4	1,075	355	720
I-5 SB On-Ramp @ Leucadia Blvd	2	1	PM	488	275	0	0.0	0	355	0
I-5 NB On-Ramp @ Leucadia Blvd	1	1	PM	647	469	49	6.3	1,225	405	820

Notes:
SOV = Single Occupancy Vehicle; HOV = High Occupancy Vehicle.
[1] Demand is the peak hour demand expected to use the on-ramp.
[2] Meter Rate is the peak hour capacity expected to be processed through the ramp meter. This value was obtained from Caltrans.
[3] Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.
[4] Delay = (Excess Demand / Meter Rate) X 60 min/hr.
[5] Queue = (Excess Demand) X 25 ft/veh.

As shown in Table 5.4, both southbound and northbound I-5 on-ramps within the study area are not anticipated to experience particularly high delays associated with ramp meters during the peak hours (over 15 minutes).

5.4 Near-Term Base with Project Roadway Network and Traffic Volumes

Roadway and intersection geometrics under the Near-Term Base with Project conditions were assumed to be identical to Near-Term Base geometrics with the addition of the following project driveway:

- Quail Gardens Drive / Project Driveway #1 – This driveway is the existing Fox Point Farms driveway and would be maintained for the Proposed Project. It is located approximately 400 feet north of Leucadia Boulevard and would allow for full-access. This is an unsignalized intersection with Quail Gardens Drive as uncontrolled and the Project Driveway being stop controlled. This driveway would include one inbound and one outbound lane.

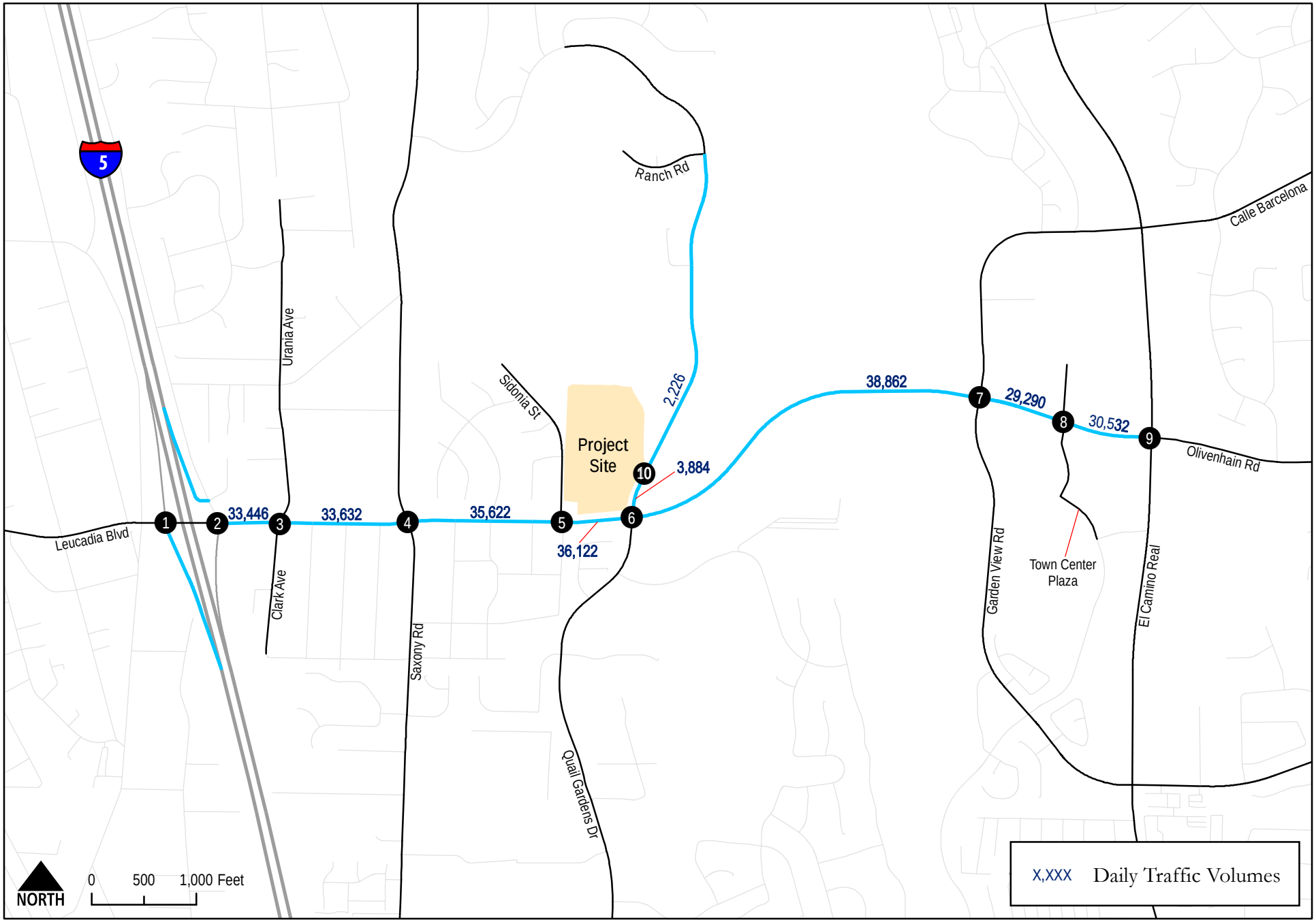
Near-Term Base with Project traffic volumes were derived by combining the Near-Term Base traffic volumes (displayed in Figure 5.3) and the project trip assignment volumes (displayed in Figure 3.3). Daily roadway and peak hour intersection volumes for this scenario are displayed in **Figure 5.4**.

5.5 Near-Term Base with Project Traffic Conditions

LOS analyses were conducted using the methodologies described in Chapter 2.0. Roadway segment, intersection LOS, and ramp meter analysis results are discussed separately in the following sections.

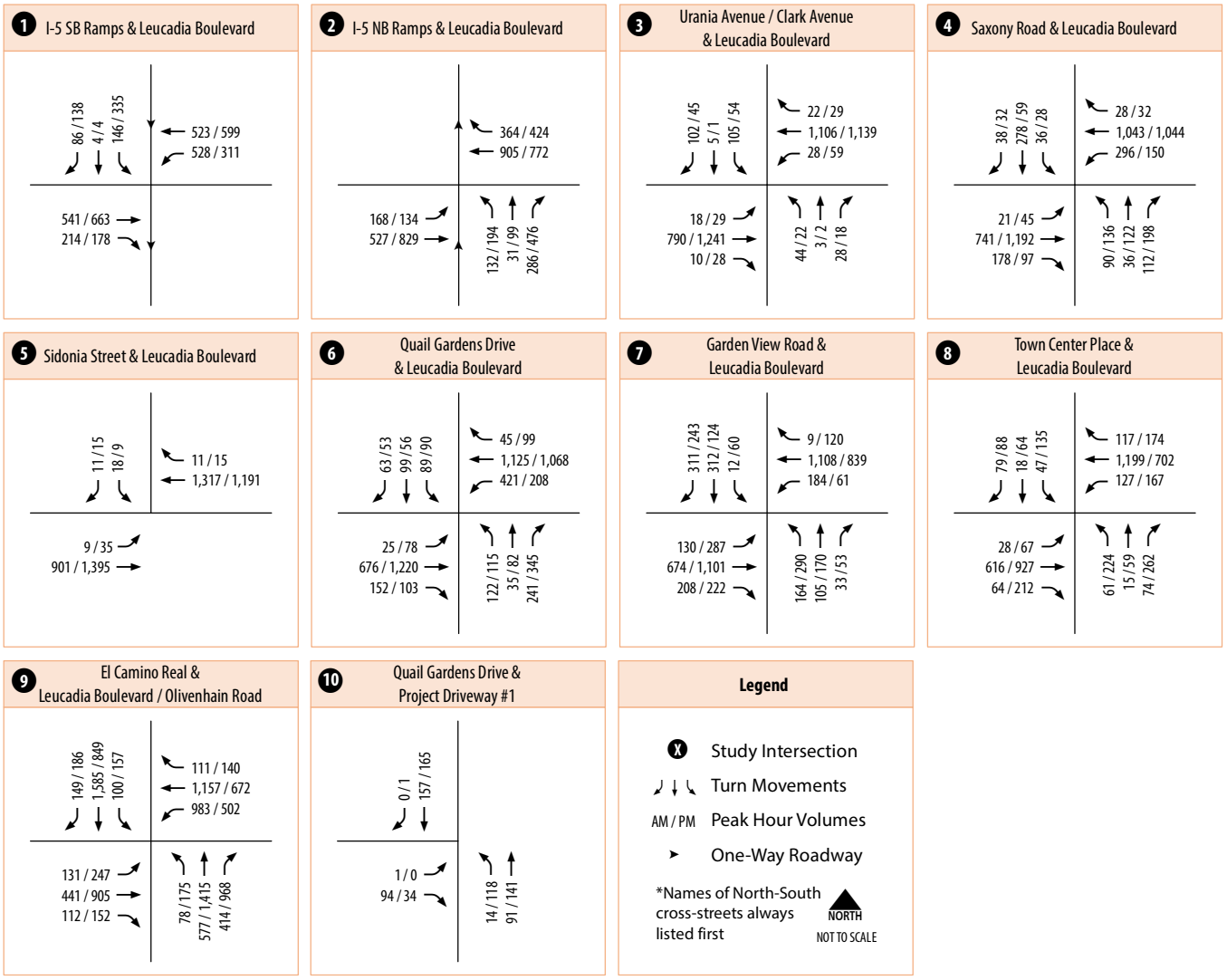
5.5.1 Roadway Segment Analysis

Table 5.5 displays the LOS analysis results for key study area roadway segments under Near-Term Base with Project.



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Figure 5.4
Roadway ADT
Near-Term Base with Project Conditions



Fox Point Farms
Vehicle Operations and Queuing Analysis
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Figure 5.4
Traffic Volumes
Near-Term Base with Project Conditions

Table 5.5 Roadway Segment Level of Service Results - Near-Term Base with Project Conditions

Roadway	Segment	Functional Classification	ADT w/ Project	LOS Threshold (LOS E)	V/C	LOS	LOS w/o Project	ΔV/C	SE?
Leucadia Boulevard	I-5 Northbound Ramps to Urania Avenue	4-Lane Major Roadway - Augmented	33,446	45,400	0.737	C	C	0.015	N
Leucadia Boulevard	Urania Avenue to Saxony Road	4-Lane Major Roadway - Augmented	33,632	45,400	0.741	C	C	0.015	N
Leucadia Boulevard	Saxony Road to Sidonia Street	4-Lane Major Roadway - Augmented	35,622	45,400	0.785	C	C	0.019	N
Leucadia Boulevard	Sidonia Street to Quail Gardens Drive	4-Lane Major Roadway - Augmented	36,122	45,400	0.796	C	C	0.019	N
Leucadia Boulevard	Quail Gardens Drive to Garden View Road	4-Lane Major Roadway - Augmented	38,862	45,400	0.856	D	D	0.014	N
Leucadia Boulevard	Garden View Road to Town Center Place	4-Lane Major Roadway - Augmented	29,290	45,400	0.645	C	C	0.010	N
Leucadia Boulevard	Town Center Place to El Camino Real	6-Lane Prime Arterial	30,532	57,000	0.536	C	C	0.007	N
Quail Gardens Drive	Ranch Road to Project Driveway #1	2-Lane Local Roadway - Augmented	2,226	20,000	0.111	C	C	0.001	N
Quail Gardens Drive	Project Driveway #1 to Leucadia Boulevard	2-Lane Local Roadway - Augmented	3,884	20,000	0.194	C	C	0.084	N

Notes:
V/C = Volume / Capacity
LOS = Level of Service
SE? = Substantial Effect?

As shown in Table 5.5, similar to Near-Term Base conditions, all study area roadway segments are anticipated to operate at acceptable LOS D or better under Near-Term Base with Project conditions.

5.5.2 Intersection Analysis

Table 5.6 displays intersection LOS and average vehicle delay results under Near-Term Base with Project conditions. LOS calculation worksheets for Near-Term Base with Project conditions are provided in Appendix I.

Table 5.6 Peak Hour Intersection Level of Service Results - Near-Term Base with Project Conditions

#	Intersection	Control Type	AM Peak Hour w/ Project		PM Peak Hour w/ Project		Delay w/o Project (sec) AM/PM	LOS w/o Project AM/PM	Change in Delay (sec) AM/PM	SE?
			Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS				
1	I-5 Southbound Ramps / Leucadia Boulevard	Signal	11.3	B	11.7	B	11.2 / 11.5	B / B	0.1 / 0.2	N
2	I-5 Northbound Ramps / Leucadia Boulevard	Signal	11.3	B	18.4	B	11.4 / 18.3	B / B	-0.1 / 0.1	N
3	Urania Avenue/Clark Avenue / Leucadia Boulevard	Signal	12.4	B	18.9	B	12.5 / 18.3	B / B	-0.1 / 0.6	N
4	Saxony Road / Leucadia Boulevard	Signal	31.3	C	48.3	D	30.6 / 46.7	C / D	0.7 / 1.6	N
5	Sidonia Street / Leucadia Boulevard	Signal	1.8	A	1.8	A	1.8 / 1.9	A / A	0.0 / -0.1	N
6	Quail Gardens Drive / Leucadia Boulevard	Signal	50.9	D	45.0	D	49.4 / 40.9	D / D	1.5 / 4.1	N
7	Garden View Road / Leucadia Boulevard	Signal	75.2	**E**	86.0	**F**	74.9 / 84.1	**E / F**	0.3 / 1.9	N
8	Town Center Place / Leucadia Boulevard	Signal	16.7	B	48.9	D	16.8 / 48.1	B / D	-0.1 / 0.8	N
9	El Camino Real / Leucadia Boulevard	Signal	165.2	**F**	97.4	**F**	165.7 / 97.4	**F / F**	-0.5 / 0.0	N
10	Quail Gardens Drive / Project Driveway #1	SSSC	10.1	B	9.8	A	N/A	N/A	10.1 / 9.8	N

Notes:
SSSC = Side-Street Stop Controlled. For SSSC intersections, the delay shown is the worst delay experienced by any of the approaches
N/A = Not Applicable. Project Driveway #1 and #2 does not exist under this scenario.
Bold letter indicates substandard Level of Service E or F.
SE? = Substantial Effect?

As shown in Table 5.6, all of the study intersection would continue to operate at acceptable LOS D or better, during both the AM and PM peak hours, with the addition of Project traffic, with the exception of the following two (2) intersections:

- Garden View Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour
- El Camino Real / Leucadia Boulevard – LOS F during the AM and PM peak hours

Based on the measures of substantial effect outlined in Section 2.5, because the traffic associated with the Proposed Project would not add 2 seconds or more of additional delay to an intersection operating at LOS E or F, the proposed project would not create a substantial effect to these intersections.

Additionally, the following study intersection with substandard LOS would improve in operations with addition of Proposed Project traffic:

- El Camino Real / Leucadia Boulevard – Delay improves by 0.5 seconds in the AM peak hour. Intersection LOS is calculated as a weighted average based on LOS per intersection turning movement. Intersections with high volumes associated with turning movements with low delays will calculate to a much higher LOS compared to intersections with high volumes associated with turning movements with high delays. Since the Proposed Project adds traffic to favorable east and west bound directions, the calculated LOS improves from base conditions. Furthermore, the project traffic would not be added to critical movements (i.e. movements with high delays) and therefore, would not increase the delay for the northbound left-turn pocket during the PM peak hour, however, Proposed Project contributes an equivalent of one car length to this excess queue.

5.5.3 Ramp Metering Analysis

Table 5.7 displays the freeway ramp metering analysis results under Near-Term Base with Project conditions.

Table 5.7 Ramp Metering Analysis – Near-Term Base with Project Conditions

On-Ramp	# of Lanes		Peak Hour	Demand[1] (veh/hr) per	Meter Rate[2] (veh/hr) per lane	Excess Demand[3] (veh/hr) per lane	Delay[4] (min)	Queue[5] (ft)	Storage Length (ft)	Excess Queue (ft)	Delay w/o Project (min)	Δ Delay (min	SE?
	SOV	HOV											
I-5 SB On-Ramp @ Leucadia Blvd	2	1	AM	746	249	49	11.8	1,225	355	870	10.4	1.4	N
I-5 SB On-Ramp @ Leucadia Blvd	2	1	PM	493	275	0	0.0	0	355	0	0.0	0.0	N
I-5 NB On-Ramp @ Leucadia Blvd	1	1	PM	653	469	53	6.8	1,325	405	920	6.3	0.5	N

Notes:
SOV = Single Occupancy Vehicle; HOV = High Occupancy Vehicle.
SE? = Substantial Effect?
[1] Demand is the peak hour demand expected to use the on-ramp.
[2] Meter Rate is the peak hour capacity expected to be processed through the ramp meter. This value was obtained from Caltrans.
[3] Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.
[4] Delay = (Excess Demand / Meter Rate) X 60 min/hr.
[5] Queue = (Excess Demand) X 25 ft/veh.

As shown in Table 5.7, both southbound and northbound I-5 on-ramps within the study area do not experience particularly high delays associated with ramp meters during the peak hours (over 15 minutes) with addition of project traffic.

5.6 Substantial Effects and Off-Site Improvement Recommendations to Accommodate Project Traffic

Based upon the measures of substantial effect presented in Section 2.5 of this report, the addition of Proposed Project traffic would not create a substantial effect to any study area roadway segments, intersections, or freeway on ramps.

Roadways
No substantial effects were identified. Therefore, no off-site improvements are recommended.

Intersection
No substantial effects were identified. Therefore, no off-site improvements are recommended.

Ramp Meters
No substantial effects were identified. Therefore, no off-site improvements are recommended.

6.0 Future Year Traffic Conditions

This section provides an analysis of Future Year conditions both with and without the Proposed Project. The scenarios analyzed in this section include:

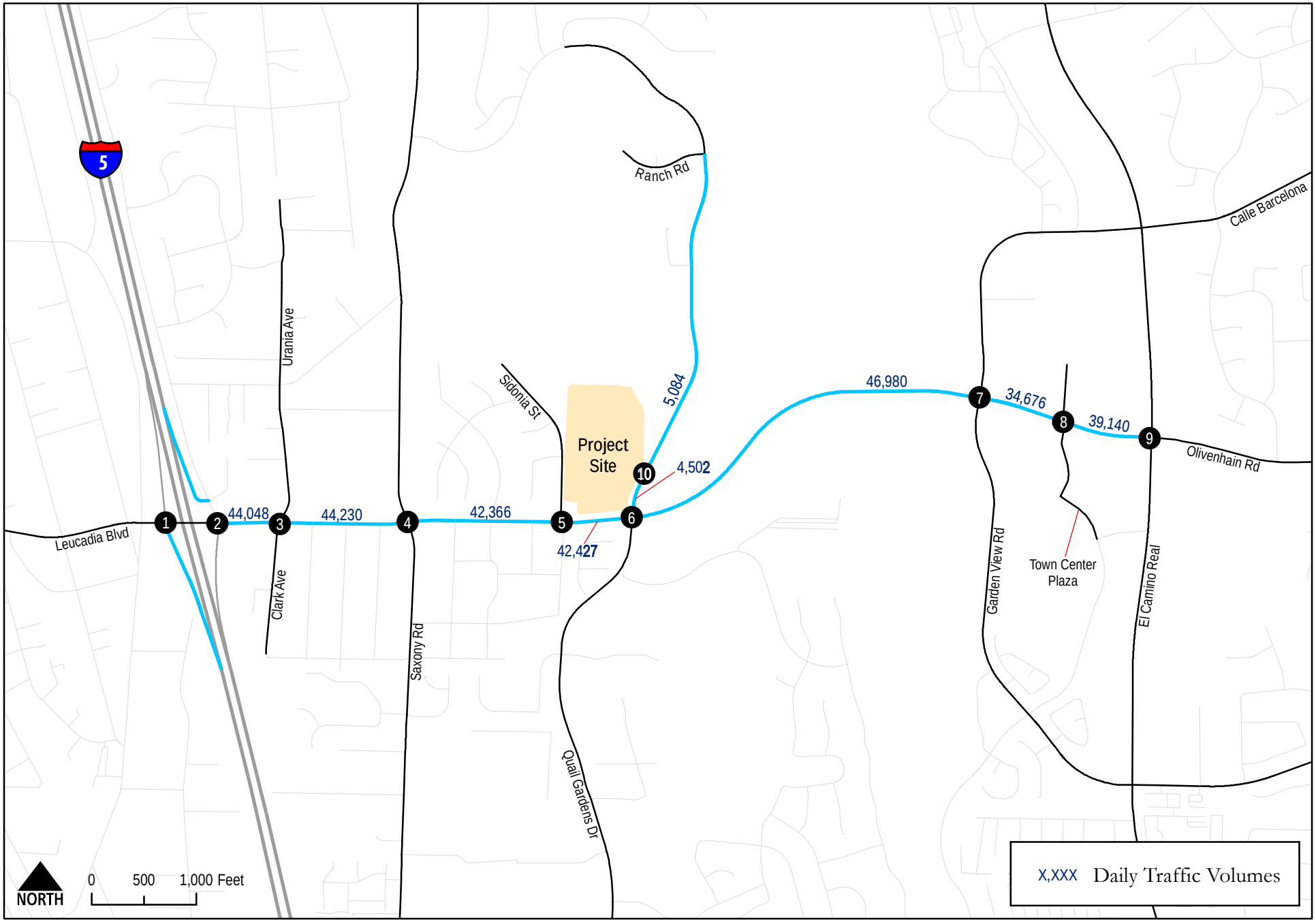
- Future Year 2035 Base
- Future Year 2035 Base with Proposed Project

6.1 Future Year 2035 Roadway Network and Traffic Volumes

Roadway and intersection geometrics under Future Year conditions were assumed to be identical to the Near-Term Base geometrics.

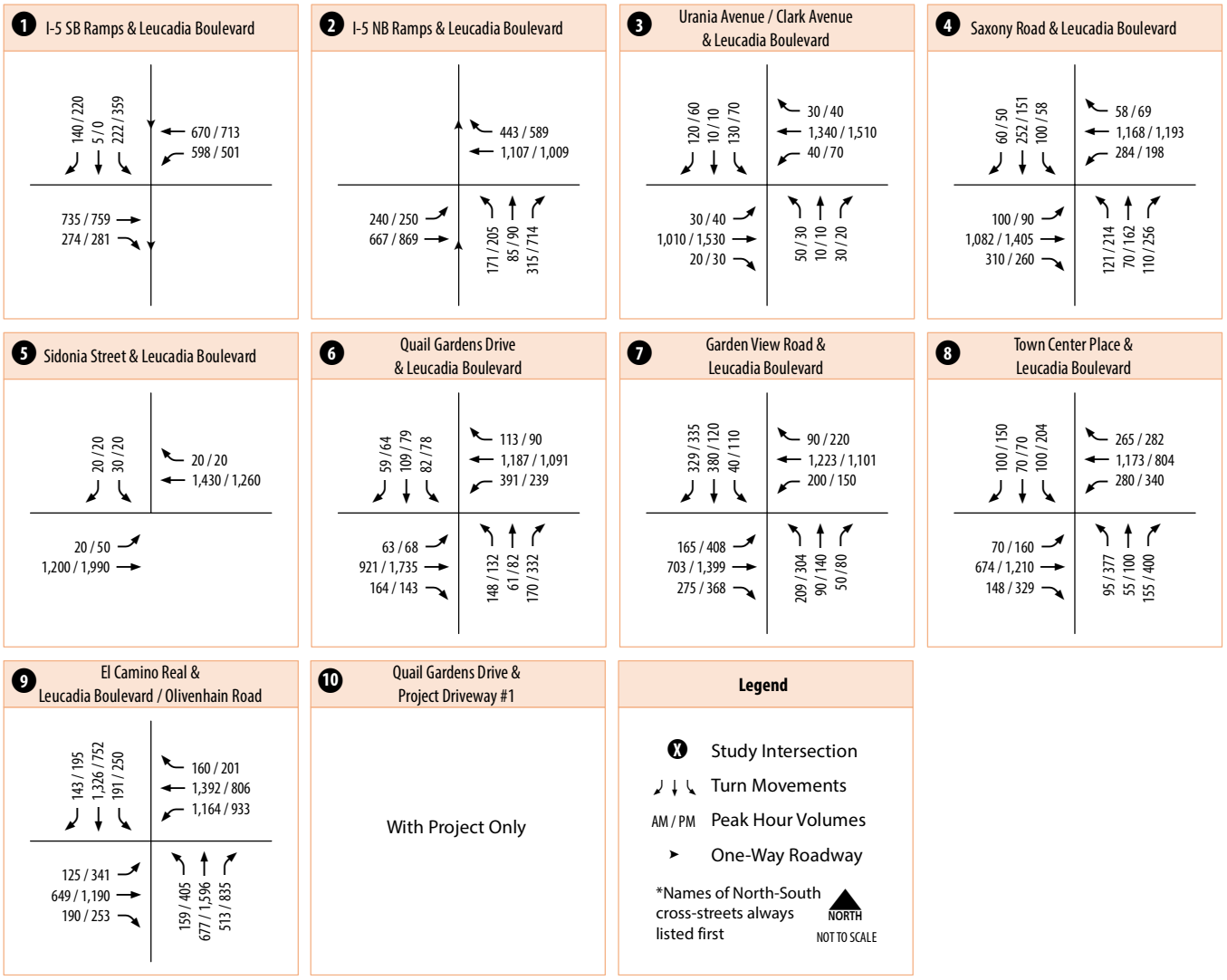
The traffic impact study prepared for the City of Encinitas *Housing Plan Update 2018 Environmental Assessment (EA)* by Kimley Horn Associates (May 2018) project (assumes future year 2035), consists of 17 candidate housing sites throughout the City of Encinitas, and would result in the addition of 2,494 new dwelling units. Subsequently, the City adopted a Housing Element that included 17 sites and a total of 1,511 dwelling units; therefore, the analysis in the Kimley Horn Associates analysis is considered conservative.

Future Year 2035 Base with Project average daily roadway and peak hour intersection volumes were obtained directly from the traffic impact study prepared by Kimley Horn Associates under Future with Project conditions, which represents the build-out of the housing element project including the units included in the Proposed Project. The Future Year 2035 Base traffic volumes were derived by reducing the average daily roadway and peak hour intersection volumes from the Future Year 2035 Base with Project by the traffic generated by the Proposed Project. Figure 6.1 displays the average daily roadway and peak hour intersection volumes for the study roadway segments and intersections under the Future Year 2035 Base conditions.



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Figure 6.1
Roadway ADT
Future Year Base Conditions



Fox Point Farms
Vehicle Operations and Queuing Analysis
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Figure 6.1
Traffic Volumes
Future Year Base Conditions

6.2 Future Year 2035 Base Traffic Conditions

LOS analyses for Future Year 2035 Base conditions were conducted using the methodologies described in Chapter 2.0. Roadway segment, intersection LOS, and ramp meter analysis results are discussed separately below.

6.2.1 Roadway Segment Analysis

Table 6.1 displays the LOS analysis results for key roadway segments under Future Year 2035 Base conditions.

Table 6.1 Roadway Segment Level of Service Results – Future Year 2035 Base Conditions

Roadway	Segment	Functional Classification	Daily Volume	LOS Threshold (LOS E)	V/C	LOS
Leucadia Boulevard	I-5 Northbound Ramps to Urania Avenue	4-Lane Major Roadway - Augmented	44,048	45,400	0.970	**E**
Leucadia Boulevard	Urania Avenue to Saxony Road	4-Lane Major Roadway - Augmented	44,230	45,400	0.974	**E**
Leucadia Boulevard	Saxony Road to Sidonia Street	4-Lane Major Roadway - Augmented	42,366	45,400	0.933	**E**
Leucadia Boulevard	Sidonia Street to Quail Gardens Drive	4-Lane Major Roadway - Augmented	42,427	45,400	0.935	**E**
Leucadia Boulevard	Quail Gardens Drive to Garden View Road	4-Lane Major Roadway - Augmented	46,980	45,400	1.035	**F**
Leucadia Boulevard	Garden View Road to Town Center Place	4-Lane Major Roadway - Augmented	34,676	45,400	0.764	C
Leucadia Boulevard	Town Center Place to El Camino Real	6-Lane Prime Arterial	39,140	57,000	0.687	C
Quail Gardens Drive	Ranch Road to Project Driveway #1	2-Lane Local Roadway - Augmented	5,084	20,000	0.254	C
Quail Gardens Drive	Project Driveway #1 to Leucadia Boulevard	2-Lane Local Roadway - Augmented	4,502	20,000	0.225	C

Notes:
V/C = Volume / Capacity
LOS = Level of Service
Bold letter indicates substandard Level of Service E or F.

As shown in Table 6.1, all of the study roadway segments are projected to operate at acceptable LOS D or better under Future Year 2035 Base conditions, with the exception of the following five (5) roadway segments:

- Leucadia Boulevard, between I-5 Northbound Ramps and Urania Avenue – LOS E
- Leucadia Boulevard, between Urania Avenue and Saxony Road – LOS E
- Leucadia Boulevard, between Saxony Road and Sidonia Street – LOS E
- Leucadia Boulevard, between Sidonia Street and Quail Gardens Drive – LOS E
- Leucadia Boulevard, between Quail Gardens Drive and Garden View Road – LOS F

These deficient roadway operations are consistent with those deficient segments identified in the *Housing Plan Update 2018 EA,* and therefore, the Proposed Project would be consistent with the City's Circulation Element policies discussed in Section 2.6.

6.2.2 Intersection Analysis

Table 6.2 displays intersection LOS and average vehicle delay results for the key study area intersections under Future Year 2035 Base conditions. LOS calculation worksheets for Future Year 2035 Base conditions are provided in Appendix J.

Table 6.2 Peak Hour Intersection Level of Service Results – Future Year 2035 Base Conditions

#	Intersection	Control Type	AM Peak Hour		PM Peak Hour	
			Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
1	I-5 Southbound Ramps / Leucadia Boulevard	Signal	13.5	B	14.2	B
2	I-5 Northbound Ramps / Leucadia Boulevard	Signal	12.1	B	30.3	C
3	Urania Avenue/Clark Avenue / Leucadia Boulevard	Signal	15.0	B	24.1	C
4	Saxony Road / Leucadia Boulevard	Signal	64.8	**E**	102.3	**F**
5	Sidonia Street / Leucadia Boulevard	Signal	2.0	A	1.8	A
6	Quail Gardens Drive / Leucadia Boulevard	Signal	80.4	**F**	116.1	**F**
7	Garden View Road / Leucadia Boulevard	Signal	73.6	**E**	170.2	**F**
8	Town Center Place / Leucadia Boulevard	Signal	38.3	D	96.0	**F**
9	El Camino Real / Leucadia Boulevard	Signal	220.2	**F**	128.5	**F**

Notes:
SSSC = Side-Street Stop Controlled. For SSSC intersections, the delay shown is the worst delay experienced by any of the approaches
Bold letter indicates substandard Level of Service E or F.

As shown in Table 6.2, all study area intersections would operate at an acceptable LOS D or better during both the AM and PM peak hours under Future Year 2035 Base conditions, with the exception of the following five (5) intersections:

- Saxony Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour
- Quail Gardens Drive / Leucadia Boulevard – LOS F during the AM and PM peak hours
- Garden View Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour
- Town Center Place / Leucadia Boulevard – LOS F during the PM peak hour
- El Camino Real / Leucadia Boulevard – LOS F during the AM and PM peak hours

Several of these intersections (i.e. Quail Gardens Drive/Leucadia Boulevard, Garden View Road/Leucadia Boulevard, and Town Center Place/Leucadia Boulevard) are not specified as deficient operations in the City of Encinitas *Housing Plan Update 2018 EA* as that study assumed improvements such as signal optimization to occur in the Future Year 2035 Baseline, whereas this analysis did not.

6.2.3 Ramp Metering Analysis

Table 6.3 displays the freeway ramp metering analysis results under Future Year 2035 Base conditions.

Table 6.3 Ramp Metering Analysis – Future Year 2035 Base Conditions

On-Ramp	# of Lanes		Peak Hour	Demand[1] (veh/hr) per lane	Meter Rate[2] (veh/hr) per lane	Excess Demand[3] (veh/hr) per lane	Delay[4] (min)	Queue[5] (ft)	Storage Length (ft)	Excess Queue (ft)
	SOV	HOV								
I-5 SB On-Ramp @ Leucadia Blvd	2	1	AM	877	249	102	24.6	2,550	355	2,195
I-5 SB On-Ramp @ Leucadia Blvd	2	1	PM	782	275	38	8.3	950	355	595
I-5 NB On-Ramp @ Leucadia Blvd	1	1	PM	929	469	274	35.1	6,850	405	6,445

Notes:
SOV = Single Occupancy Vehicle; HOV = High Occupancy Vehicle.
[1] Demand is the peak hour demand expected to use the on-ramp.
[2] Meter Rate is the peak hour capacity expected to be processed through the ramp meter. This value was obtained from Caltrans.
[3] Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.
[4] Delay = (Excess Demand / Meter Rate) X 60 min/hr.
[5] Queue = (Excess Demand) X 25 ft/veh.

As shown in Table 6.3, both southbound and northbound I-5 on-ramps within the study area experience particularly high delays associated with ramp meters during the peak hours where a delay of 15-minutes or more was calculated:

- I-5 SB On-Ramp @ Leucadia Boulevard – 24.6 minutes during the AM peak hour
- I-5 NB On-Ramp @ Leucadia Boulevard – 35.1 minutes during the PM peak hour

6.3 Future Year 2035 Base with Project Roadway Network and Traffic Volumes

Roadway and intersection geometrics under the Future Year 2035 Base with Project conditions were assumed to be identical to Near-Term Base geometrics with the addition of the following project driveway:

- Quail Gardens Drive / Project Driveway #1 – This driveway is the existing Fox Point Farms driveway and would be maintained for the Proposed Project. It is located approximately 400 feet north of Leucadia Boulevard and would allow for full-access. This is an unsignalized intersection with Quail Gardens Drive as uncontrolled and the Project Driveway being stop controlled. This driveway would include one inbound and one outbound lane.

Future Year 2035 Base with Project average daily roadway and peak hour intersection volumes were obtained directly from the traffic impact study prepared by Kimley Horn Associates under Future with Project conditions, which represents the build-out of the housing element project including the Proposed Project. Future Year 2035 Base with Project traffic volumes are provided in Appendix K. Daily roadway and peak hour intersection volumes for this scenario are displayed in Figure 6.2.

6.4 Future Year 2035 Base with Project Traffic Conditions

LOS analyses were conducted using the methodologies described in Chapter 2.0. Roadway segment, intersection LOS, and ramp meter analysis results are discussed separately in the following sections.

6.4.1 Roadway Segment Analysis

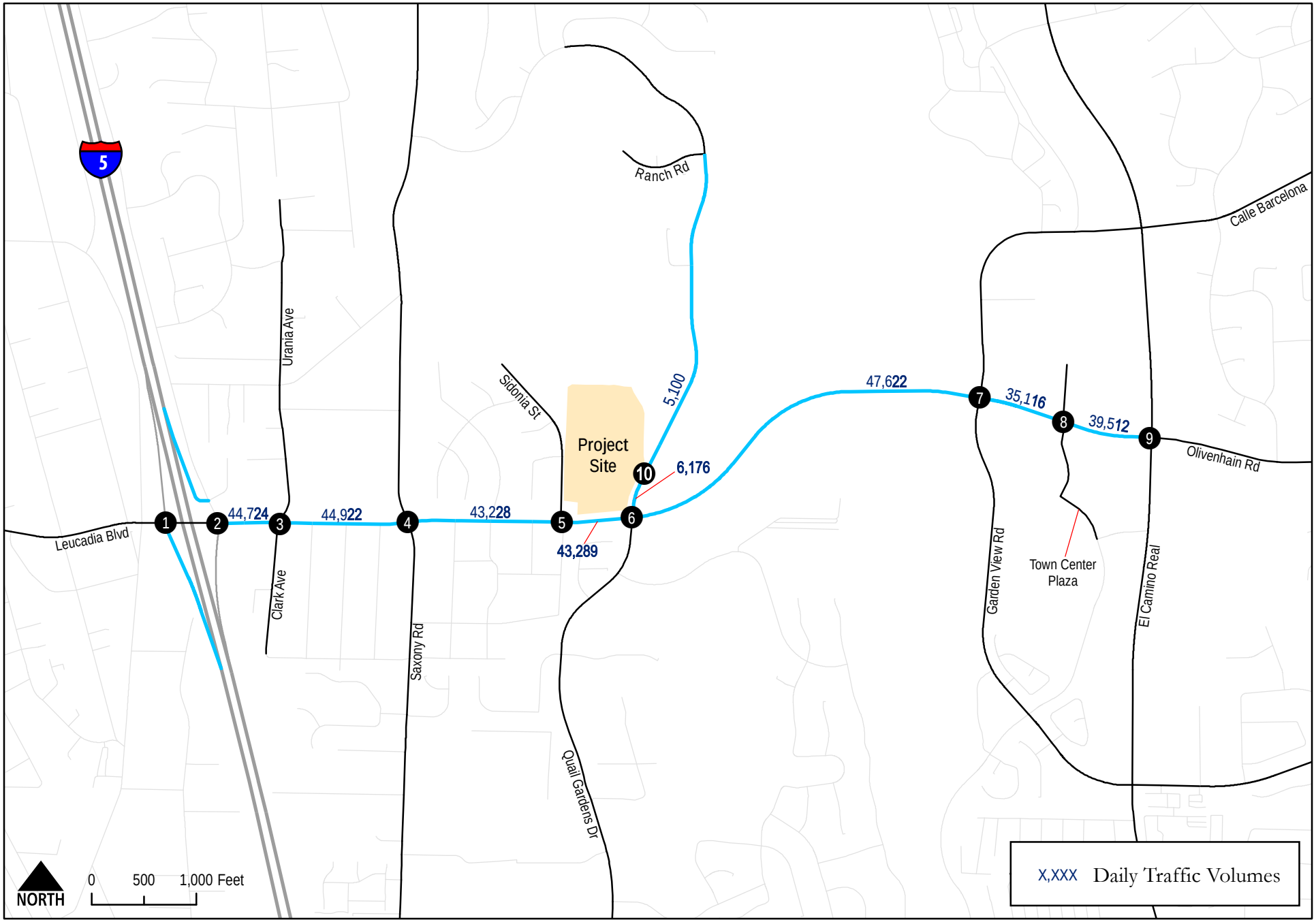
Table 6.4 displays the LOS analysis results for key study area roadway segments under Future Year 2035 Base with Project.

As shown in Table 6.4, all study are roadway segments would operate at LOS D or better under Future Year 2035 Base with Project conditions, with the exception of the following five (5) roadway segments:

- Leucadia Boulevard, between I-5 Northbound Ramps and Urania Avenue – LOS E
- Leucadia Boulevard, between Urania Avenue and Saxony Road – LOS E
- Leucadia Boulevard, between Saxony Road and Sidonia Street – LOS E
- Leucadia Boulevard, between Sidonia Street and Quail Gardens Drive – LOS E
- Leucadia Boulevard, between Quail Gardens Drive and Garden View Road – LOS F

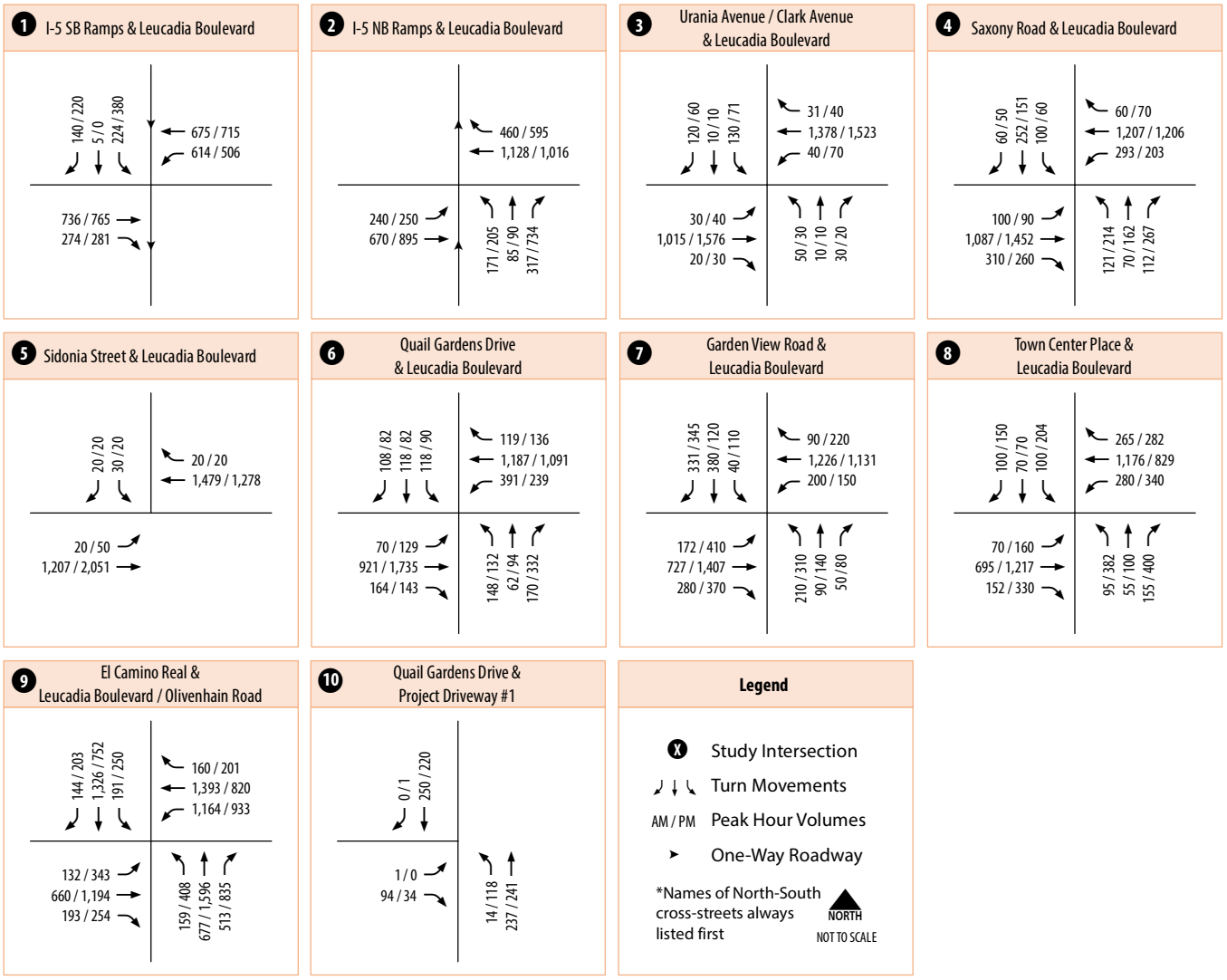
These deficient roadway segments are consistent with what was identified in the City of Encinitas *Housing Plan Update 2018 EA* and approved for their substandard operations.

Based on the measures of substantial effect outlined in Section 2.5, because the traffic associated with the Proposed Project would not increase the volume-to-capacity (v/c) ratio by 0.2 or more to a roadway segment operating at LOS E or F, the Proposed Project would not create a substantial effect to these roadway segments.



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Figure 6.2
Roadway ADT
Future Year Base with Project Conditions



Fox Point Farms
Vehicle Operations and Queuing Analysis
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Figure 6.2
Traffic Volumes
Future Year Base with Project Conditions

Table 6.4 Roadway Segment Level of Service Results – Future Year 2035 Base with Project Conditions

Roadway	Segment	Functional Classification	ADT w/ Project	LOS Threshold (LOS E)	V/C	LOS	LOS w/o Project	ΔV/C	SE?
Leucadia Boulevard	I-5 Northbound Ramps to Urania Avenue	4-Lane Major Roadway - Augmented	44,724	45,400	0.985	**E**	**E**	0.015	N
Leucadia Boulevard	Urania Avenue to Saxony Road	4-Lane Major Roadway - Augmented	44,922	45,400	0.989	**E**	**E**	0.015	N
Leucadia Boulevard	Saxony Road to Sidonia Street	4-Lane Major Roadway - Augmented	43,228	45,400	0.952	**E**	**E**	0.019	N
Leucadia Boulevard	Sidonia Street to Quail Gardens Drive	4-Lane Major Roadway - Augmented	43,289	45,400	0.954	**E**	**E**	0.019	N
Leucadia Boulevard	Quail Gardens Drive to Garden View Road	4-Lane Major Roadway - Augmented	47,622	45,400	1.049	**F**	**F**	0.014	N
Leucadia Boulevard	Garden View Road to Town Center Place	4-Lane Major Roadway - Augmented	35,116	45,400	0.773	C	C	0.010	N
Leucadia Boulevard	Town Center Place to El Camino Real	6-Lane Prime Arterial	39,512	57,000	0.693	C	C	0.007	N
Quail Gardens Drive	Ranch Road to Project Driveway #1	2-Lane Local Roadway - Augmented	5,100	20,000	0.255	C	C	0.001	N
Quail Gardens Drive	Project Driveway #1 to Leucadia Boulevard	2-Lane Local Roadway - Augmented	6,176	20,000	0.309	C	C	0.084	N

Notes:
V/C = Volume / Capacity
LOS = Level of Service
SE? = Substantial Effect?
Bold letter indicates substandard Level of Service E or F.

6.4.2 Intersection Analysis

Table 6.5 displays intersection LOS and average vehicle delay results under Future Year 2035 Base with Project conditions. LOS calculation worksheets for Future Year 2035 Base with Project conditions are provided in **Appendix L**.

Table 6.5 Peak Hour Intersection Level of Service Results – Future Year 2035 Base with Project Conditions

#	Intersection	Control Type	AM Peak Hour w/ Project		PM Peak Hour w/ Project		Delay w/o Project (sec) AM/PM	LOS w/o Project AM/PM	Change in Delay (sec) AM/PM	SE?
			Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS				
1	I-5 Southbound Ramps / Leucadia Boulevard	Signal	13.6	B	14.4	B	13.5 / 14.2	B / B	0.1 / 0.2	N
2	I-5 Northbound Ramps / Leucadia Boulevard	Signal	12.1	B	31.5	C	12.1 / 30.3	B / C	0.0 / 1.2	N
3	Urania Avenue/Clark Avenue / Leucadia Boulevard	Signal	15.0	B	26.2	C	15.0 / 24.1	B / C	0.0 / 2.1	N
4	Saxony Road / Leucadia Boulevard	Signal	66.4	**E**	119.2	**F**	64.8 / 102.3	**E** / **F**	1.6 / **16.9**	**Y**
5	Sidonia Street / Leucadia Boulevard	Signal	2.0	A	1.7	A	2.0 / 1.8	A / A	0.0 / -0.1	N
6	Quail Gardens Drive / Leucadia Boulevard	Signal	80.2	**F**	115.4	**F**	80.4 / 116.1	**F** / **F**	-0.2 / -0.7	N
7	Garden View Road / Leucadia Boulevard	Signal	73.9	**E**	173.0	**F**	73.6 / 170.2	**E** / **F**	0.3 / **2.8**	**Y**
8	Town Center Place / Leucadia Boulevard	Signal	38.2	D	96.7	**F**	38.3 / 96.0	D / **F**	-0.1 / 0.7	N
9	El Camino Real / Leucadia Boulevard	Signal	219.6	**F**	129.2	**F**	220.2 / 128.5	**F** / **F**	-0.6 / 0.7	N
10	Quail Gardens Drive / Project Driveway #1	SSSC	10.6	B	9.8	A	N/A	N/A	10.6 / 9.8	N

Notes:
SSSC = Side-Street Stop Controlled. For SSSC intersections, the delay shown is the worst delay experienced by any of the approaches
N/A = Not Applicable. Project Driveway #1 and #2 does not exist under this scenario.
Bold letter indicates substandard Level of Service E or F.
Bold and underlined indicates substantial effect.
SE? = Substantial Effect?

As shown in Table 6.5, all of the study intersection would operate at acceptable LOS D or better, during both the AM and PM peak hours, with the addition of Project traffic, with the exception of the following five (5) intersections:

- Saxony Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour
- Quail Gardens Drive / Leucadia Boulevard – LOS F during the AM and PM peak hours
- Garden View Road / Leucadia Boulevard – LOS E during the AM peak hour and LOS F during the PM peak hour
- Town Center Place / Leucadia Boulevard – LOS F during the PM peak hour
- El Camino Real / Leucadia Boulevard – LOS F during the AM and PM peak hours

As specified previously, several intersections (i.e Quail Gardens Drive/Leucadia Boulevard, Garden View Road/Leucadia Boulevard, and Town Center Place/Leucadia Boulevard) are not specified as deficient operations in the City of Encinitas *Housing Plan Update 2018 EA* as that study assumed improvements such as signal optimization to occur in the Future Year 2035 Baseline, whereas this analysis did not.

Based on the measures of substantial effect outlined in Section 2.5, the traffic associated with the Proposed Project would add 2 seconds or more of additional delay to an intersection operating at LOS E or F, and would create a substantial effect to the following (2) intersections.

- Saxony Road / Leucadia Boulevard
- Garden View Road / Leucadia Boulevard

Additionally, the following study intersection with substandard LOS would improve in operations with addition of Proposed Project traffic:

- Quail Gardens Drive / Leucadia Boulevard – Delay improves by 0.2 seconds in the AM peak hour and 0.7 seconds in the PM Peak hour under Future Year 2035 Base with Project Conditions. Intersection LOS is calculated as a weighted average based on delay per intersection turning movement. Thus, weighted averages would be reduced when traffic is added to a movement with high volume but really low delay, such as movements on Leucadia Boulevard or El Camino Real, but would increase when traffic is added to low volume movements with substantially high delays. Since the Proposed Project adds traffic to favorable east and west bound directions, the calculated LOS improves from base conditions.

6.4.3 Ramp Metering Analysis

Table 6.6 displays the freeway ramp metering analysis results under Future Year 2035 Base with Project conditions.

Table 6.6 Ramp Metering Analysis – Future Year 2035 Base with Project Conditions

On-Ramp	# of Lanes		Peak Hour	Demand[1] (veh/hr) per lane	Meter Rate[2] (veh/hr) per lane	Excess Demand[3] (veh/hr) per lane	Delay[4] (min)	Queue[5] (ft)	Storage Length (ft)	Excess Queue (ft)	Delay w/o Project (min)	Δ Delay (min	SE?
	SOV	HOV											
I-5 SB On-Ramp @ Leucadia Blvd	2	1	AM	893	249	108	26.0	2,700	355	2,345	24.6	1.4	N
I-5 SB On-Ramp @ Leucadia Blvd	2	1	PM	787	275	40	8.7	1,000	355	645	8.3	0.4	N
I-5 NB On-Ramp @ Leucadia Blvd	1	1	PM	935	469	279	35.7	6,975	405	6,570	35.1	0.6	N

Notes:
SOV = Single Occupancy Vehicle; HOV = High Occupancy Vehicle.
SE? = Substantial Effect?
[1] Demand is the peak hour demand expected to use the on-ramp.
[2] Meter Rate is the peak hour capacity expected to be processed through the ramp meter. This value was obtained from Caltrans.
[3] Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.
[4] Delay = (Excess Demand / Meter Rate) X 60 min/hr.
[5] Queue = (Excess Demand) X 25 ft/veh.

As shown in Table 6.6, both southbound and northbound I-5 on-ramps within the study area experience particularly high delays associated with ramp meters during the peak hours where a delay of 15-minutes or more was calculated with addition of Project traffic:

- I-5 SB On-Ramp @ Leucadia Boulevard – 26.0 minutes during the AM peak hour
- I-5 NB On-Ramp @ Leucadia Boulevard – 35.7 minutes during the PM peak hour

Based on the measures of substantial effect outlined in Section 2.5 of this report, because the implementation of the Proposed Project would not add 2 minutes or more of additional delay to a ramp meter operating with over 15-minutes of delay, the Proposed Project would not create a substantial effect to any of the ramp meters.

6.5 Substantial Effects and Off-Site Improvement Recommendations to Accommodate Project Traffic

Based upon the measures of substantial effect presented in Section 2.5 of this report, the addition of Proposed Project traffic would not create a substantial effect to any study area roadway segments or freeway on ramps; however, the Proposed Project would create a substantial effect at two (2) intersections under Future Year 2035 Base with Project conditions. The following off-site improvements are recommended to improve traffic operations at intersections operating at substandard LOS with addition of project traffic:

Roadways

No substantial effects were identified. Therefore, no off-site improvements are recommended.

Intersection

The traffic generated by the Proposed Project is anticipated to create a substantial effect at the following two (2) intersections:

- *Saxony Road / Leucadia Boulevard* – To improve traffic operations at this location, the traffic signal operations would need to be modified to convert the northbound and southbound approaches from protected left-turn operation to protected-permissive left-turn operation. This recommendation is consistent with the assumption provided in the traffic impact study prepared for the City of Encinitas *Housing Plan Update 2018 EA*.

- *Garden View Road / Leucadia Boulevard* - To improve traffic operations at this location, the traffic signal timing would need to be optimized or install traffic systems management (TSM) strategies (e.g. adaptive signal timing) to maximize efficiency of the corridor. Signal optimization could include reoptimizing cycle lengths and/or signal splits to better accommodate future traffic demand along the corridor[2]. Implementing this would improve intersection vehicle delays to better than pre-project conditions. This assumption is consistent with the traffic impact study prepared for the City of Encinitas *Housing Plan Update 2018 EA,* which assumes implementation of signal optimization for the circulation element roadways/intersections under Future Year 2035 conditions. Signal optimization, or timing adjustment based on traffic demand, could result in intersection capacity, vehicle throughput, and reduction in vehicle delays.

Table 6.7 displays intersection LOS and average vehicle delay results under Future Year 2035 Base with Project conditions with off-site improvement recommendations. The LOS worksheet are provided in **Appendix M**.

Table 6.7 Peak Hour Intersection Level of Service Results – Future Year 2035 Base with Project Conditions with Off-Site Improvement Recommendations

#	Intersection	Control Type	AM Peak Hour w/ Project w/ Off-Site Improvements		PM Peak Hour w/ Project w/ Off-Site Improvements		Delay w/o Project (sec) AM/PM	LOS w/o Project AM/PM	Change in Delay (sec)
			Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS			
4	Saxony Road / Leucadia Boulevard	Signal	60.5	**E**	59.3	**E**	64.8 / 102.3	**E / F**	-4.3 / -43.0
7	Garden View Road / Leucadia Boulevard	Signal	49.4	D	54.4	D	73.6 / 170.2	**E / F**	-24.2 / -115.8

Notes:
Bold letter indicates substandard Level of Service E or F.

As shown in Table 6.7, the recommended off-site improvements would improve traffic operations at intersections operating at substandard LOS with addition of project traffic. Additionally, these off-site

[2] Cycle lengths at Garden View Road/Leucadia Boulevard would need to be increased by 20 seconds to accommodate the additional demand Leucadia Boulevard during the peak hours. This signal optimization would improve intersection operation to better than pre-project conditions.

improvements would make the intersection operations consistent with those identified in the *Housing Plan Update 2018 EA,* and therefore, the Proposed Project would be consistent with the City's Circulation Element policies discussed in Section 2.6

Ramp Meters

No substantial effects were identified. Therefore, no off-site improvements are recommended.

7.0 Site Access

This chapter addresses access to the project site. Topics discussed include site-access and on-site circulation, parking, and driveway queueing.

7.1 Site Access and On-Site Vehicle Circulation

The project is located at the northwest corner of the intersection of Quail Gardens Drive and Leucadia Boulevard within the City of Encinitas. Vehicle access to the Proposed Project would be provided via the following side-street stop-controlled driveway:

- Quail Gardens Drive / Project Driveway #1– This driveway is the existing Fox Point Farms driveway and would be maintained for the Proposed Project. It is located approximately 400 feet north of Leucadia Boulevard and would allow for full-access. This is an unsignalized intersection with Quail Gardens Drive as uncontrolled and the Project Driveway being stop controlled. This driveway would include one inbound and one outbound lane.

The site is bisected by a primary internal east-west roadway and provides access to the restaurant parking on the east side and smaller internal roadways to the residential units. The project driveway is projected to operate at acceptable LOS B or better under all studied scenarios.

The site plan includes two-way drive aisles with no "dead-end" aisles. None of the aisles/internal roadways are excessively long to where vehicle speeds on-site are expected to be excessive.

7.1.1 Sight Distance

The sight distance study was performed utilizing intersection sight distance criteria found in the *Caltrans Highway Design Manual* to evaluate both corner and stopping sight distance.

- *Corner Sight Distance* - is measured along the direction of travel from a point on the minor road at least 10 feet from the edge of the major road pavement. It is measured from an eye height of 3.5 feet on the minor road to a height of an object 4.25 feet on the major road. Corner sight distance is used to evaluate if obstructions within the driveway/intersection or along the roadway can be removed to provide a better line of sight for motorists exiting the driveway/intersection.
- *Stopping Sight Distance* - is measured from the driver's eyes, which are assumed to be 3.5 feet above the pavement surface, to an object 0.5-foot high on the road. This is used as the minimum or critical standard that must be met for driveways and intersections where there may be uncontrolled conflicts between motorists.
- *Speed* - the roadway design speed is used to determine the minimum sight distance requirement, which shall be the greater than the current prevailing speed (if known) and the minimum design speed of the respective road classification.

A field survey was conducted to measure the line of sight distances for the proposed project driveway on Quail Gardens Drive. Table 7.1 displays the design speed, the measured sight distance, as well as the respective minimum corner and stopping sight distance requirements for the project driveway.

Table 7.1 Project Driveway Sight Distance

Location	Design Speed (mph)[1]	Corner Sight Distance			Stopping Sight Distance		
		Measured (ft)[2]	Required (ft)	Adequate?	Measured (ft)[2]	Required (ft)	Adequate?
Quail Gardens Drive / Project Driveway #1	40	590 / 440	440	Y/ Y	440 / 510	300	Y / Y

Notes:
[1] Based on traffic engineering standards assuming posted speed limit in the 85th percentile design speed. Posted speed limit on Quail Gardens Drive is 35 mph; therefore, the design speed is 40 mph.
[2] XX / XX = To/From North / To/From South.

As shown, the Quail Gardens Drive and Project Driveway 1 intersection meets the line of sight distance requirements for both the corner and stopping sight distance.

7.2 Driveway Queueing

A queueing analysis was conducted for the Proposed Project's driveway and the movements on and Quail Gardens Drive to determine if the extensive queues could form on the project fronting roadway that would impede with the driveway operations.

Table 7.2 shows the 95th percentile queue at the project driveway and on Quail Gardens Drive at the Leucadia Boulevard intersection.

Table 7.2 Quail Gardens Drive Queuing Analysis

Intersection	Movement	Storage (ft)[1]	95th Percentile Queue[2]					
			Existing w/ Project		Near Term w/ Project		Future w/ Project	
			AM	PM	AM	PM	AM	PM
Quail Gardens Dr / Project Dwy #1	EBL/EBR	875	25	25	25	25	25	25
	NBL	105	0	25	0	25	0	25
	SBR	755	0	0	0	0	0	0
Leucadia Blvd / Quail Gardens Dr	SBL	175	100	125	175	175	**200**	**200**
	SBT	360	100	100	100	100	100	125
	SBR	75	25	0	0	0	25	0

Notes:
[1] Storage measured from upstream intersection. For example, Leucadia Blvd/Quail Gardens Drive southbound through storage measured from Leucadia Boulevard to Project Driveway.
[2] Queues are rounded to the nearest 25 feet to represent one vehicle length.

As shown, the vehicle queues at the project driveway and on Quail Gardens Drive are expected to fit within the existing storage with exception to the following:

- Southbound left-turn pocket at the Quail Gardens Drive and Leucadia Boulevard intersection – Queue exceeds the pocket length by one vehicle length (25 feet)

To accommodate the anticipated full length of the southbound left-turn queue, the proposed project will reconstruct the median to lengthen the southbound left-turn storage pocket by 25 feet at Leucadia Boulevard / Quail Gardens Drive intersection and shorten the northbound left-turn pocket at the project driveway since there is sufficient storage to serve the project trips.

8.0 Project Driveway Option

This section provides an analysis of the Proposed Project utilizing a two-driveway site access option. The two driveways are described as follows:

- Quail Gardens Drive / Project Driveway #1 – This driveway is the existing Fox Point Farms driveway and would be maintained for the Proposed Project. It is located approximately 400 feet north of Leucadia Boulevard and would allow for full-access. This is an unsignalized intersection with Quail Gardens Drive as uncontrolled and the Project Driveway being stop controlled. This driveway would include one inbound and one outbound lane.
- Sidonia Street / Project Driveway #2 – This driveway would be a new intersection and would connect to Guildford Court. It is located approximately 600 feet north of Leucadia Boulevard and would allow for full-access. This is an unsignalized intersection with Sidonia Street as uncontrolled and the Project Driveway/Guilford Court being stop controlled. This driveway would include one inbound and one outbound lane.

The scenarios analyzed in this section include:

- Existing with Proposed Project
- Near-Term Base with Proposed Project
- Future Year 2035 Base with Proposed Project

Additionally, results for No-Project for all scenarios will be provided for comparison.

8.1 Project Trip Generation, Distribution, and Assignment – Project Driveway Option

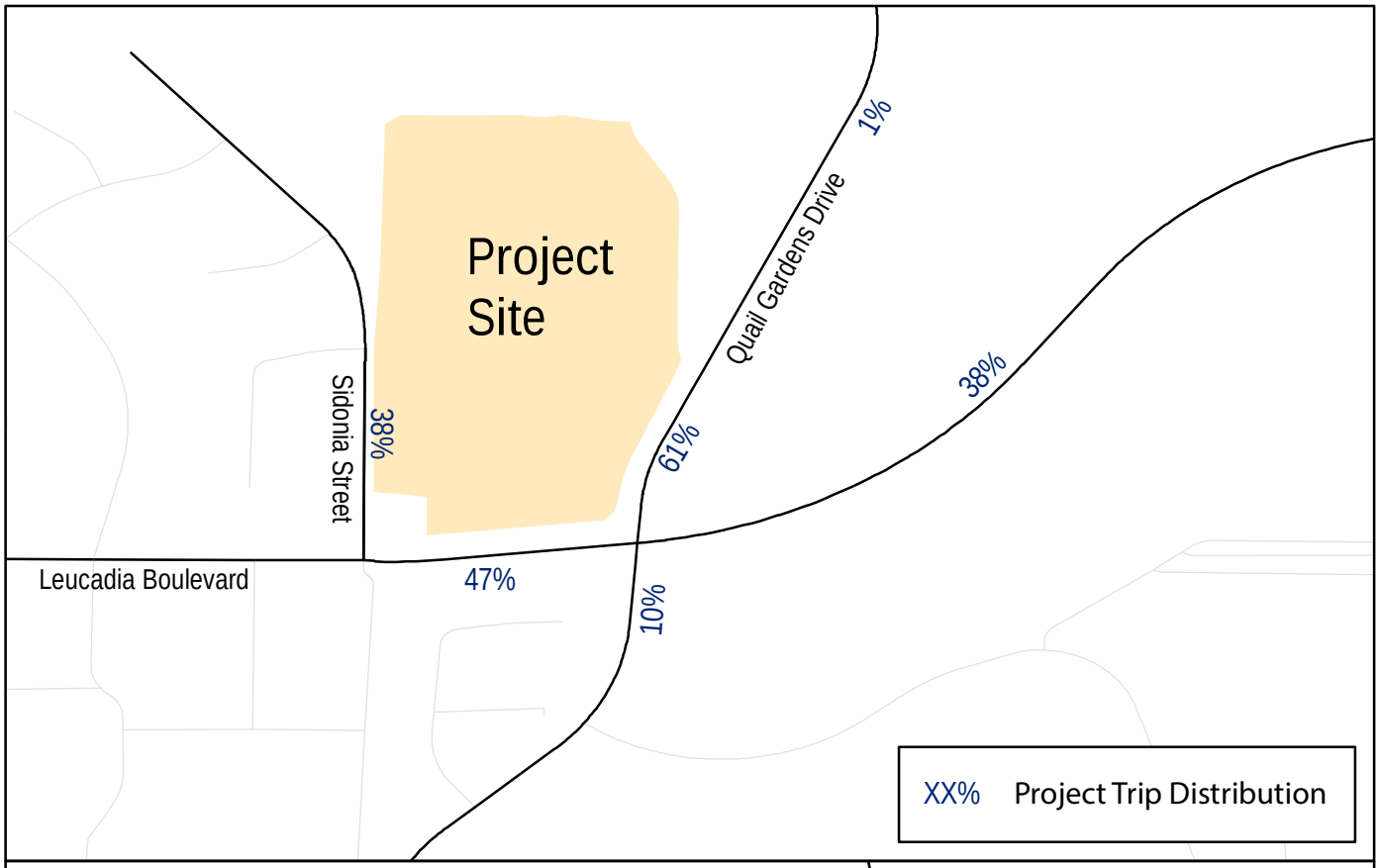
Under Project Driveway Option conditions, the Proposed Project trip generation will remain unchanged as displayed in Table 3.1. However, project trip distribution in Figure 3.2 and trip assignment in Figure 3.3 will be re-distributed along the transportation facilities fronting the Proposed Project site. **Figure 8.1** displays the trip distribution patterns associated with the Proposed Project under this option. The project's distribution at the external gateways (i.e. to-from I-5, to-from east on Leucadia Boulevard, and to-from North on Quail Gardens Drive) is anticipated to be the same as the Proposed Project's single access driveway because the travel time is not anticipated to significantly change to those gateways with the additional driveway. For example, according to Google Maps, for vehicles trying to travel north on I-5 from the project site, it is still faster to use the Leucadia Boulevard I-5 on-ramp than it would be to travel northbound on Quail Gardens Drive to access the La Costa Avenue I-5 on-ramps. Based upon the Proposed Project trip generation (Table 3.1) and distribution (Figure 7.1), daily trips as well as AM/PM peak hour project trips were assigned to the adjacent roadway network, also displayed in Figure 7.1.

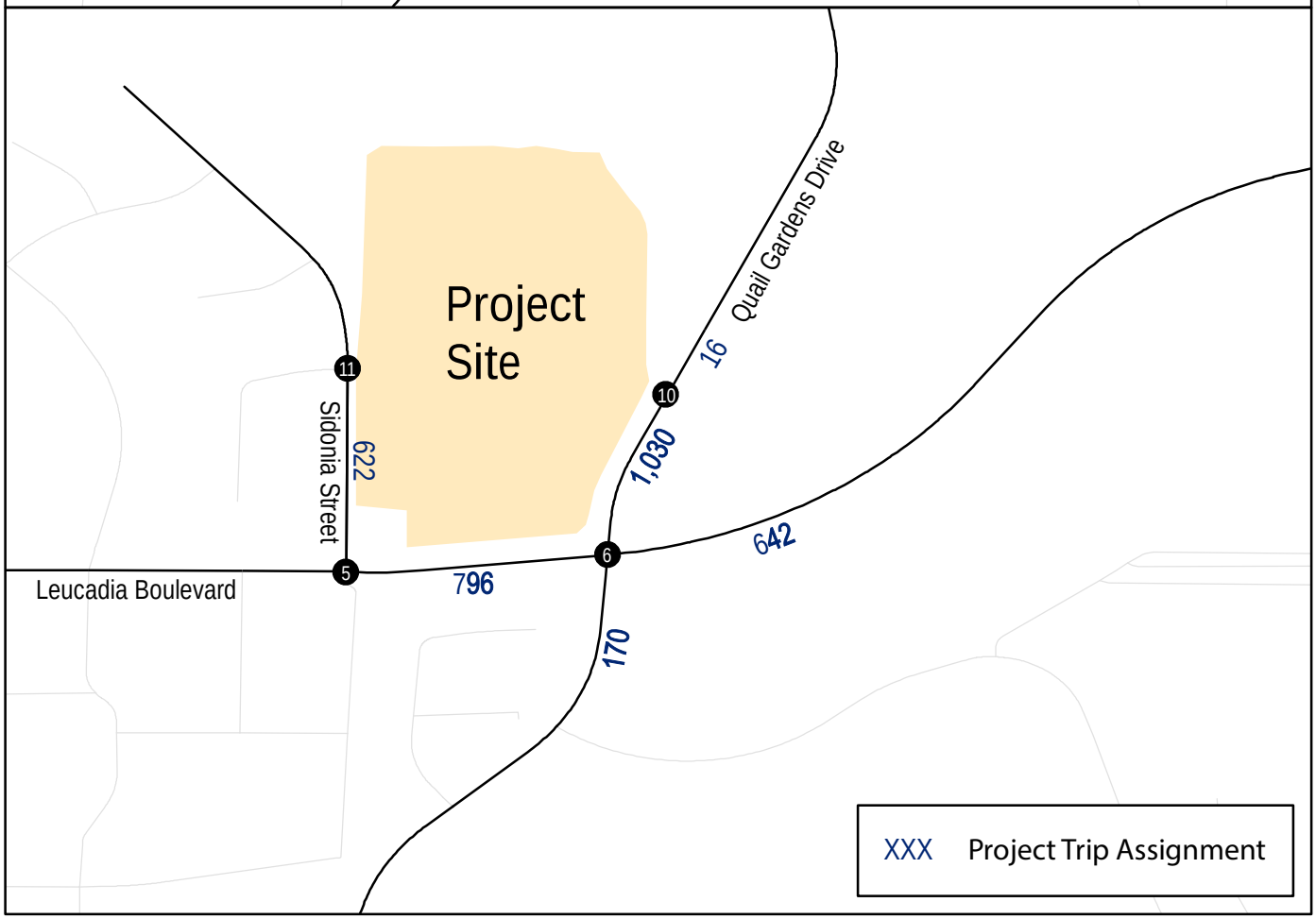
8.2 Study Area – Project Driveway Option

Based on the trip assignment displayed in Figure 8.1, the following roadway segments and intersections were analyzed for this option, which are the facilities to be directly affected by the new driveway configuration:

Roadway Segments

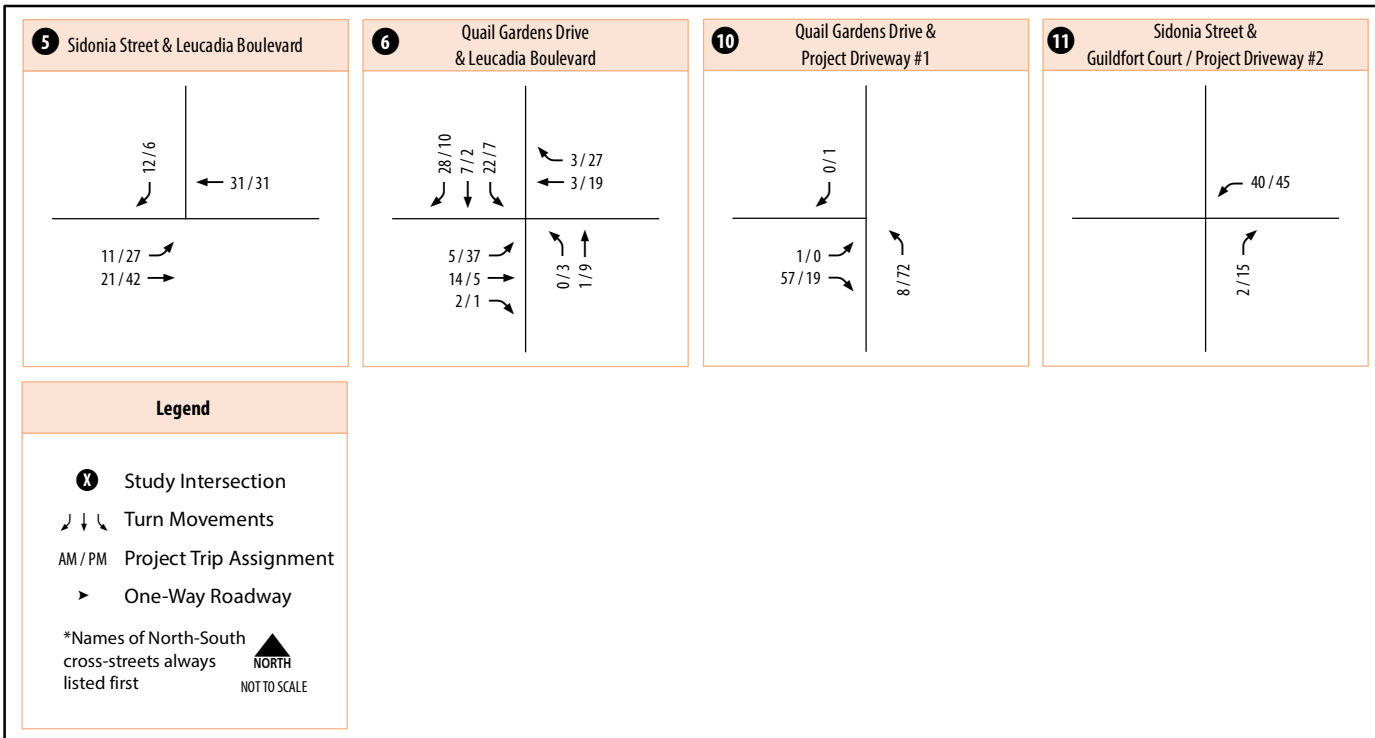
4. Leucadia Boulevard, between Sidonia Street and Quail Gardens Drive
9. Quail Gardens Drive, between Project Driveway #1 and Leucadia Boulevard
10. Sidonia Street, between Project Driveway #2 and Leucadia Boulevard





Fox Point Farms
Vehicle Operations and Queuing Analysis
CHEN RYAN

Figure 8.1
Traffic Volumes
Project Trip Distribution & Assignment
Project Driveway Option



Fox Point Farms
Vehicle Operations and Queuing Analysis
CHEN RYAN

Figure 8.1
Traffic Volumes
Project Trip Distribution & Assignment
Project Driveway Option

Intersections

5. Sidonia Street / Leucadia Boulevard (Signalized)
6. Quail Gardens Drive / Leucadia Boulevard (Signalized)
10. Quail Gardens Drive / Project Driveway #1
11. Sidonia Street / Project Driveway #2

The operations for the study area facilities not included in this section are assumed to be unchanged from the results outlined in the previous sections.

8.3 With Project Roadway Network and Traffic Volumes – Project Driveway Option

Roadway and intersection geometrics for all scenarios under with Project conditions were assumed to be identical to existing geometrics (displayed in Figure 4.1) with the addition of the two project driveways described at the beginning of this chapter.

For each respective with project scenario, traffic volumes were derived by combining the base traffic volumes (displayed for Existing in Figure 4.2, Near-Term in Figure 5.3, Future Year 2035 in Figure 6.1) and the Project Driveway Option trip assignment volumes (displayed in Figure 8.1).

8.4 Traffic Conditions – Project Driveway Option

LOS analyses were conducted using the methodologies described in Chapter 2.0. Roadway segment, intersection LOS, queuing analysis results are discussed separately in the following sections.

8.4.1 Roadway Segment Analysis

Table 8.1 displays the LOS analysis results for study area roadway segments for all study scenarios under Project Driveway Option Conditions.

Table 8.1 Roadway Segment Level of Service Results – Project Driveway Option

Roadway	Segment	Scenario	Functional Classification	Daily Volume	LOS Threshold (LOS E)	V/C	LOS	ΔV/C from base	SE?
Leucadia Boulevard	Sidonia Road to Quail Gardens Drive	E+P	4-Lane Major Roadway - Augmented	35,543	45,400	0.783	C	0.018	N
		NT+P		36,056		0.794	C	0.018	N
		F+P		43,223		0.952	**E**	0.018	N
Quail Gardens Drive	Project Driveway #1 to Leucadia Boulevard	E+P	2-Lane Local Roadway - Augmented	3,223	20,000	0.161	C	0.052	N
		NT+P		3,240		0.162	C	0.052	N
		F+P		5,532		0.277	C	0.052	N
Sidonia Street	Project Driveway #2 to Leucadia Boulevard	E+P	2-Lane Local Roadway	1,384	14,000	0.099	C	0.046	N
		NT+P		1,384		0.099	C	0.046	N
		F+P		1,764		0.126	C	0.046	N

Notes:
V/C = Volume / Capacity
LOS = Level of Service SE? = Substantial Effect?
Bold letter indicates substandard Level of Service E or F.
SE? = Substantial Effect?
E+P = Existing with Project
NT+P = Near Term Base with Project
F+P = Future Year 2035 Base with Project

As shown, both roadway segments fronting the Proposed Project site are anticipated to operate at LOS C or better for all study scenarios under Project Driveway Option Conditions, with the exception of the following roadway segments:

- Leucadia Boulevard, between Sidonia Street and Quail Gardens Drive – LOS E under Future Year 2035 Base with Project Conditions

This deficient roadway segment is consistent with what was identified in the City of Encinitas *Housing Plan Update 2018 EA* and approved for their substandard operations.

Based on the measures of substantial effect outlined in Section 2.5, because the traffic associated with the Proposed Project would not increase the volume-to-capacity (v/c) ratio by 0.2 or more to a roadway segment operating at LOS E or F, the Proposed Project would not create a substantial effect to the roadway segment listed above.

8.4.2 Intersection Analysis

Table 8.2 displays intersection LOS and average vehicle delay results for the study area intersections for all study scenarios for the Project Driveway Option. LOS calculation worksheets are provided in Appendix N.

As shown in Table 8.2, all intersections fronting the project site are anticipated to operate at LOS D or better for all study scenarios under Project Driveway Option Conditions, with the exception of the following intersection:

- Quail Gardens Drive / Leucadia Boulevard – LOS F during the AM and PM peak hours under Future Year 2035 Base with Project Conditions

Based on the measures of substantial effect outlined in Section 2.5, because the traffic associated with the Proposed Project would not add 2 seconds or more of additional delay to an intersection operating at LOS E or F, the proposed project would not create a substantial effect to the intersection listed above.

Table 8.2 Peak Hour Intersection Level of Service Results Comparison – No Project and Project Driveway Option

#	Intersection	Control Type	Scenario	AM Peak Hour w/ Project		PM Peak Hour w/ Project		Delay w/o Project (sec) AM/PM	LOS w/o Project AM/PM	Change in Delay (sec) AM/PM	SE?
				Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS				
5	Sidonia Street / Leucadia Boulevard	Signal	E+P	2.4	A	2.7	A	1.8 / 2.0	A / A	0.6 / 0.7	N
			NT+P	2.4	A	2.6	A	1.8 / 1.9	A / A	0.6 / 0.7	N
			F+P	2.4	A	2.3	A	2.0 / 1.8	A / A	0.4 / 0.5	N
6	Quail Gardens Drive / Leucadia Boulevard	Signal	E+P	32.6	C	34.3	C	32.4 / 33.0	C / C	0.2 / 1.3	N
			NT+P	51.0	D	42.9	D	49.4 / 40.9	D / D	1.6 / 2.0	N
			F+P	81.9	**F**	116.3	**F**	80.4 / 116.1	**F / F**	1.5 / 0.2	N
10	Quail Gardens Drive / Project Driveway #1	SSSC	E+P	9.7	A	9.6	A	N/A	N/A	9.7 / 9.6	N
			NT+P	9.7	A	9.6	A	N/A	N/A	9.7 / 9.6	N
			F+P	10.3	B	9.7	A	N/A	N/A	10.3 / 9.7	N
11	Sidonia Street / Project Driveway #2	SSSC	E+P	9.0	A	9.3	A	N/A	N/A	9.0 / 9.3	N
			NT+P	9.0	A	9.3	A	N/A	N/A	9.0 / 9.3	N
			F+P	9.0	A	9.3	A	N/A	N/A	9.0 / 9.3	N

Notes:
SSSC = Side-Street Stop Controlled. For SSSC intersections, the delay shown is the worst delay experienced by any of the approaches
N/A = Not Applicable. Project Driveway #1 and #2 does not exist under this scenario.
Bold letter indicates substandard Level of Service E or F.
SE? = Substantial Effect?
E+P = Existing with Project
NT+P = Near Term Base with Project
F+P = Future Year 2035 Base with Project

8.4.3 Queue Analysis

A queueing analysis was conducted for the Proposed Project's single driveway and the movements on Quail Gardens Drive/Leucadia Boulevard intersection to determine if the extensive queues could form on the two roadways that would impede with the driveway operations.

Table 8.3 shows the 95th percentile queue at the two project driveways and the Quail Gardens Drive and Leucadia Boulevard intersection for all study scenarios.

As shown, the vehicle queues at the project driveway and on Quail Gardens Drive are expected to fit within the existing storage with exception to the following:

- Southbound left-turn pocket at the Quail Gardens Drive and Leucadia Boulevard intersection – Queue exceeds the pocket length by one vehicle length (25 feet)

To accommodate the anticipated full length of the southbound left-turn queue, the proposed proect will reconstruct the median to lengthen the southbound left-turn storage pocket by 25 feet at Leucadia

Boulevard / Quail Gardens Drive intersection and shorten the northbound left-turn pocket at the project driveway since there is sufficient storage to serve the project trips.

Table 8.3 Sidonia Street & Quail Gardens Drive Queuing Analysis

Intersection	Movement	Storage (ft)[1]	95th Percentile Queue[2]					
			Existing w/ Project		Near Term w/ Project		Future w/ Project	
			AM	PM	AM	PM	AM	PM
Quail Gardens Dr / Project Dwy #1	EBL/EBR	875	25	25	25	25	25	25
	NBL	105	0	25	0	25	0	25
	SBR	755	0	0	0	0	0	0
Sidonia St / Project Dwy #2	WBL/WBR	875	25	25	25	25	25	25
	NBR	525	0	0	0	0	0	0
	SBL	290	0	0	0	0	0	0
Leucadia Blvd / Quail Gardens Dr	SBL	175	75	125	150	175	200	200
	SBT	360	100	75	100	100	100	125
	SBR	75	0	0	0	0	0	0

Notes:
[1] Storage measured from upstream intersection. For example, Leucadia Blvd/Quail Gardens Drive southbound through storage measured from Leucadia Boulevard to Project Driveway.
[2] Queues are rounded to the nearest 25 feet to represent one vehicle length.

9.0 Pedestrian, Bicycle, and Transit Assessment

This chapter discusses the project site's alternative transportation modes (walking, bicycling, and transit).

9.1 Pedestrian Facilities

The existing project sites is bound by continuous sidewalks on the south and east sides on Leucadia Boulevard and Quail Gardens Drive, respectively. The western boundary of the project does not provide sidewalks on Sidonia Street. To improve connectivity for the Proposed Project's residents and patrons, it is recommended that a pedestrian facility be installed on Sidonia Street to connect to Leucadia Boulevard in order to enhance the pedestrian environment surrounding the project site.

As displayed on the project site plan via Figure 3.1, an onsite roadway is proposed connecting Quail Gardens Drive to internal circulating roadway network. It is recommended that the pedestrian facilities be installed along both sides of this onsite roadway and built to City of Encinitas standards as well as to implement the following features for safety:

- High visibility pedestrian crossings
- Installation of speed bumps to prevent speeding
- All pedestrian amenities should meet ADA requirements.

It is recommended that pedestrian crossings, both internally and at the site driveway, be enhanced with high visibility crosswalks and signage since it is a conflict point between vehicles and pedestrian, so by implementing these enhancements, it could improve driver awareness and improve safety.

Additionally, City of Encinitas specific plan states that enhanced pavement sections with colorized concrete shall be provided to enhance crosswalk designations at the Leucadia Boulevard and Quail Gardens Drive intersection. Since this intersection exists along the project frontage, the Proposed Project may be conditioned to provide or make contributions towards improvements.

9.2 Bicycle Facilities

There are bicycle lanes directly adjacent to the project site on Quail Gardens Drive and Leucadia Boulevard. The *City of Encinitas Active Transportation Plan Administrative Draft April 2018* plan specifies proposed multi-use paths on the southside of Leucadia Boulevard and a buffered bike lane on the north side. It is recommended that the Proposed Project provide bicycle parking spaces and or lockers to encourage residents to bike to and from the site instead of driving an automobile.

9.3 Transit

The project site is within a one-quarter of a mile walking distance of the North County Transit District (NCTD) Bus Route #304 that runs along Leucadia Boulevard within the study area. Route #304 connects the Palomar College Transit Center to the Encinitas Station with 43 bus stops. Operation starts at 4:58 AM and ends at 8:23 PM between Monday through Friday, and operates between 7:23 AM to 8:23 PM on Saturday. Route #304 currently does not operate on Sundays. This route operates on 40-minute headways.

10.0 Travel Demand Management (TDM)

Implementation of a travel demand management (TDM) plan could lead to vehicle trip reduction, increased use of alternative modes, and better traffic management in the vicinity of the Project area. The Proposed Project plans to implement a robust TDM program to help reduce the project's VMT. The TDM program is organized in the following three (3) strategy types:

Land Use Strategies

- "Mix of Uses" - The proposed project would provide a mix of land uses, including residential, commercial and recreational uses, so that residents of the proposed project have access to basic amenities without having to travel outside of the project site. This proximity would lower vehicle miles traveled because residents can use non-automobile transportation modes to reach the various uses available within the site.
- "Affordable Housing" - The proposed project will provide 39 very-low income affordable housing units, which provide greater opportunity for lower income families to live closer to jobs centers and achieve jobs/housing match near transit, and allow a greater number of families to be accommodated within a given building footprint.

Travel and Commute Services for Residents and Employees

These strategies will provide residents with travel options other than private auto for trips to destinations outside of the Project area:

Neighborhood/Site Enhancements

- "Pedestrian Connections" - The proposed project will develop a pedestrian network that provides accommodations on-site as well as convenient pedestrian access to Leucadia Boulevard and Quail Gardens Drive.
- "E-Bike Share" - The proposed project will implement an electric bike share program to link to local Encinitas destinations and reduce motorized vehicle trips. The electric bike share program would provide for the availability of 10 electric bikes for the exclusive use of project residents to provide sustainable transportation as a substitute for individual vehicle ownership/use. In addition to the E-Bike program, high quality bike parking would be provided for project residents.
- "Multi-use Trail" – The proposed project site plan also includes a multi-use path that loops the site. Multi-use trails and paths comprise a total of nearly two miles within the site.
- "Car share dedicated parking" – Two dedicated parking spaces west of the community recreation center to accommodate car sharing opportunities will be established.

Commute Trip Reduction Strategies

- "Business Center" - The Project will include a resident business center in the community recreation center with Wi-Fi access for residents, printers/scanners, and other office amenities to enable residents to work remotely rather than commuting to work.
- "TDM Marketing Program" –
    - The Project will promote and advertise various transportation options, including promoting information and resources regarding SANDAG's iCommute program, which provides support to commuters through a variety of TDM measures, such as carpool matching services, vanpool, and other services.
    - The Project will promote formal and/or informal networks among residents for carpool/ vanpool purposes.

    - Promote available websites providing transportation options for residents.
    - Create and distribute a "new resident" information packet addressing alternative modes of transportation.
- "School Pool" - The Project will coordinate and implement a "school pool" program for project students.
- "Transit Passes Subsidies" – NCTD Regional Transit passes will be offered to the 20 on-site employees as an alternative to parking at the project site.

Details of the VMT reductions associated with these strategies are described in the Transportation Impact Study (TIS) report.

11.0 Construction Analysis

Project construction is anticipated to begin in June 2021 and will occur over a 24-month period over two phases. During this period, debris from existing developments and materials for redevelopment will be hauled to and from the project site. The traffic generated by the construction phase would be removed from the street network once the project is constructed. All construction related traffic would access the project site via the existing driveway along Quail Gardens Drive, and most of the construction activities would occur on the project site. For any construction related activities in the public right-of-way during the construction period, two-way traffic would be maintained pursuant to a Traffic Control Plan (TCP) be prepared by the project's contractor and approved by the City consistent with City regulations and policies.

The SANDAG guide to traffic generation (2002) and the ITE (2017) *Trip Generation Manual, 10th Edition* do not contain trip rates for the construction-related activities. Therefore, the project's general construction phasing and schedule provided from the CalEEMod Air Quality analysis was utilized to estimate the proposed project's peak daily and peak hour construction traffic generation. Based on the estimated peak number of workers, vendor and haul truck trips across the various phases and months of the proposed project, the peak construction phase was identified as the building construction and architectural coating phase. During this phase, while there would be many different combinations of construction related trips, the maximum number of daily on-site worker car trips would be 250 trips a day, and the maximum number of trucks would be 38 vendor or equipment delivery trucks a day.

Based on hours of construction operations, all workers would arrive at the site before 7:00 a.m., (i.e., before the AM peak period) and leave by 4:00 p.m. (i.e., before the PM peak period). The truck trips would generally be equally distributed over an 8-hour construction period. **Table 11.1** provides the projects' trip generation for the peak construction phase.

Table 11.1 Project Construction Trip Generation

Use	Units	Daily Vehicle Trips	AM Peak Hour[1]		PM Peak Hour[1]	
			In	Out	In	Out
Construction Employees Vehicles	250 vehicles	250	0	0	0	0
Vendor/Equipment Truck[2]	38 trucks	76	5	5	5	5
	Total	**326**	**5**	**5**	**5**	**5**

Source: CalEEMod, LDN Consulting Inc.

[1] Construction employee trips are anticipated to occur before the peak hour, so there would be zero construction employee trips during the AM and PM peak hours.

[2] All trucks are assumed to generate 2 trips per day (one inbound trip and one outbound trip), and all truck trips are equally distributed over an 8-hour construction period.

As shown, the proposed project construction is anticipated to generate approximately 326 daily trips including 10 trips (5 in / 5 out) during AM Peak Hour and 6 trips (5 in / 5 out) during the PM peak hour. The construction worker trips would be distributed similar to the local and regional distribution as the proposed project, while truck traffic would primarily access the site on Quail Gardens, via I-5 and Leucadia Boulevard.

The project's construction trip generation is substantially less than the total project's trip generation (shown in Table 3.1). Since the daily construction trip generation is significantly lower than the proposed project's daily and peak hour trip generation, the construction of the project is not anticipated to create a substantial effect to the surrounding transportation network.

For any potential construction related activities in the public right-of-way during the construction period, two-way traffic would be maintained, and the City would require a Traffic Control Plan (TCP) be prepared by the project's contractor.

Appendix A
Signal Timing Sheets

INTERSECTION: Leucadia Blvd & Clark

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **40**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **1/15/2019 12:13**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	**1**	<C+0+0>
Zone Number		<C+0+1>
Area Number	**0**	<C+0+2>
Area Address	**1**	<C+0+3>
QuicNet Channel	**Unknown**	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	**20**	<F+0+E>
Red Revert	**5.0**	<F+0+F>
All Red Start	**5.0**	<F+C+0>

Start / Revert Times

	Phase							
Column Numbers ---->	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Row *Phase Names ---->*								
0 Ped Walk	**0**	**5**	**0**	**5**	**0**	**5**	**0**	**0**
1 Ped FDW	**0**	**10**	**0**	**24**	**0**	**17**	**0**	**0**
2 Min Green	**4**	**20**	**3**	**7**	**4**	**20**	**3**	**7**
3 Type 3 Limit	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4 Added Initial	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
5 Veh Extension	**2.0**	**3.5**	**0.5**	**2.0**	**2.0**	**3.5**	**0.5**	**2.0**
6 Max Gap	**4.0**	**5.0**	**0.5**	**2.0**	**4.0**	**5.0**	**0.5**	**2.0**
7 Min Gap	**1.0**	**4.0**	**0.5**	**2.0**	**1.0**	**4.0**	**0.5**	**2.0**
8 Max Limit	**25**	**40**	**17**	**40**	**30**	**40**	**17**	**40**
9 Max Limit 2	**30**	**70**	**30**	**70**	**30**	**70**	**30**	**70**
A - - - - - -	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
B Call To Phase	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
C Reduce By	**0.1**	**0.5**	**0.1**	**0.0**	**0.1**	**0.5**	**0.1**	**0.0**
D Reduce Every	**0.5**	**10.0**	**1.0**	**0.0**	**0.5**	**10.0**	**1.0**	**0.0**
E Yellow Change	**3.0**	**4.3**	**3.0**	**3.0**	**3.0**	**4.3**	**3.0**	**3.0**
F Red Clear	**0.5**	**1.0**	**0.0**	**0.5**	**0.5**	**1.0**	**0.0**	**0.5**

Phase Timing - Bank 1 <F Page>

Row		**E**
	RR-1 Delay	**0**
	RR-1 Clear	**10**
	EV-A Delay	**0**
	EV-A Clear	**1**
	EV-B Delay	**0**
	EV-B Clear	**1**
	EV-C Delay	**0**
	EV-C Clear	**1**
	EV-D Delay	**0**
	EV-D Clear	**1**
	RR-2 Delay	**0**
	RR-2 Clear	**10**
	View EV Delay	- - -
	View EV Clear	- - -
	View RR Delay	- - -
	View RR Clear	- - -

Preempt Timing

Row		**F**
0	Permit	**12_456_8**
1	Red Lock	_____
2	Yellow Lock	_____
3	Min Recall	**_2___6__**
4	Ped Recall	_____
5	*View Set Peds*	**- - - - -**
6	Rest In Walk	_____
7	Red Rest	_____
8	Dual Entry	**___4___8**
9	Max Recall	_____
A	Soft Recall	_____
B	Max 2	_____
C	Cond. Service	_____
D	Man Cntrl Calls	_____
E	Yellow Start	**___4___8**
F	First Phases	**_2___6__**

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

Coordination <C Page>

Row	Column Numbers ---->	Plan 1	2	3	4	5	6	7	8	9	Row
	Plan Name ---->										
0	Cycle Length	90	90	110	120	0	0	0	0	0	0
1	Phase 1 - ForceOff	15	20	20	25	0	0	0	0	0	1
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0	2
3	Phase 3 - ForceOff	0	0	0	0	0	0	0	0	0	3
4	Phase 4 - ForceOff	40	50	55	58	0	0	0	0	0	4
5	Phase 5 - ForceOff	53	68	75	80	0	0	0	0	0	5
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0	6
7	Phase 7 - ForceOff	0	0	0	0	0	0	0	0	0	7
8	Phase 8 - ForceOff	40	50	55	58	0	0	0	0	0	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	44	47	60	70	0	0	0	0	0	A
B	Offset 2	0	0	0	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	0	0	0	0	0	0	0	0	0	D
E	Hold Release	90	90	255	115	0	0	0	0	0	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

(* = Coordination Recall)

Sync Phases <C Page>

Row		E	Row
0			0
1	Plan 1 - Sync	2 6	1
2	Plan 2 - Sync	2 6	2
3	Plan 3 - Sync	2 6	3
4	Plan 4 - Sync	2 6	4
5	Plan 5 - Sync	2 6	5
6	Plan 6 - Sync	2 6	6
7	Plan 7 - Sync	2 6	7
8	Plan 8 - Sync	2 6	8
9	Plan 9 - Sync	2 6	9
A	Coord Ped *		A
B	NEMA Hold		B
C			C
D			D
E			E
F			F

Configuration <E Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	4
C	EV-C Phases	1 6
D	EV-D Phases	8
E	Extra 1 Config. Bits	1 3 5
F	IC Select (Interconnect)	2

Configuration <E Page>

	F
RR Overlap A - Phases	
RR Overlap B - Phases	
RR Overlap C - Phases	
RR Overlap D - Phases	
Ped 2P	2
Ped 6P	6
Ped 4P	4
Ped 8P	
Yellow Flash Phases	
Overlap A - Phases	
Overlap B - Phases	
Overlap C - Phases	
Overlap D - Phases	
Restricted Phases	
Assign 5 Outputs	

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	5

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Lag Phases <C Page>

Row		F	Row
0	Free Lag	2 4 6 8	0
1	Plan 1 - Lag	1 4 6 8	1
2	Plan 2 - Lag	1 4 6 8	2
3	Plan 3 - Lag	1 4 6 8	3
4	Plan 4 - Lag	1 4 6 8	4
5	Plan 5 - Lag	2 4 6 8	5
6	Plan 6 - Lag	2 4 6 8	6
7	Plan 7 - Lag	2 4 6 8	7
8	Plan 8 - Lag	2 4 6 8	8
9	Plan 9 - Lag	2 4 6 8	9
A	Coord Max *		A
B	Coord Lag *		B
C			C
D			D
E			E
F			F

TOD Coordination
<9 Key with C+D+9=0>

Row	Time	Plan	Offset	Day of Week
0	00 : 00	E	A	1234567
1	11 : 00	1	A	1234567
2	19 : 00	E	A	1234567
3	06 : 30	2	A	_23456_
4	08 : 00	2	A	1____7
5	16 : 00	4	A	_23456_
6	18 : 00	E	A	1234567
7	00 : 00	0	0	_____
8	00 : 00	0	0	_____
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

TOD Function
<7 Key>

Time	Funct.	Day of Week	Column F Phases/Bits
06 : 00	E	1234567	_____8
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____

<D Page>

Holiday # 1 TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 2 TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 3 TOD Coordination
<9 Key with C+D+9=3>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	_____
B	Holiday # 2 Date	0	0	0	_____
C	Holiday # 3 Date	0	0	0	_____

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	5.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	0.0	0.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	1
2	System Det. # 2	2
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	5
6	System Det. # 6	6
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 3 <F Page>

Row		7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output
0	Delay Only --->	0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
1		0	0							
2		0	0							
3		0	0							
4		0	0							
5		0	0							
6		0	0							
7		0	0							
8		0	0							
9	Limited Service Int. --->	0	0							
A		- - -	0							
B		0	0							
C		0	0							
D		0	0							
E		0	0							
F		0	0							

<--- Limited Service Interval (Set Dwell = 255)

Special Event Schedule <C Page with F+9+F=22>

INTERSECTION: Leucadia Blvd & Saxony

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **39**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **1/15/2019 12:13**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	**1**	<C+0+0>
Zone Number		<C+0+1>
Area Number	**0**	<C+0+2>
Area Address	**1**	<C+0+3>
QuicNet Channel	**Unknown**	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	**20**	<F+0+E>
Red Revert	**5.0**	<F+0+F>
All Red Start	**5.0**	<F+C+0>

Start / Revert Times

	Phase							
Column Numbers ---->	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Row *Phase Names ---->*								
0 Ped Walk	**0**	**5**	**0**	**5**	**0**	**5**	**0**	**5**
1 Ped FDW	**0**	**13**	**0**	**22**	**0**	**12**	**0**	**22**
2 Min Green	**4**	**10**	**4**	**5**	**4**	**10**	**4**	**5**
3 Type 3 Limit	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4 Added Initial	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
5 Veh Extension	**2.0**	**2.5**	**2.0**	**2.0**	**2.0**	**2.5**	**2.0**	**2.0**
6 Max Gap	**4.0**	**5.0**	**4.0**	**2.0**	**4.0**	**5.0**	**4.0**	**2.0**
7 Min Gap	**1.0**	**1.5**	**1.0**	**2.0**	**1.0**	**1.5**	**1.0**	**2.0**
8 Max Limit	**60**	**90**	**35**	**35**	**20**	**60**	**25**	**30**
9 Max Limit 2	**30**	**70**	**30**	**70**	**30**	**70**	**30**	**70**
A - - - - - -	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
B Call To Phase	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
C Reduce By	**0.1**	**0.5**	**0.1**	**0.0**	**0.1**	**0.5**	**0.1**	**0.0**
D Reduce Every	**0.5**	**4.5**	**0.5**	**0.0**	**0.5**	**4.5**	**0.5**	**0.0**
E Yellow Change	**3.0**	**4.3**	**3.0**	**3.2**	**3.0**	**4.3**	**3.0**	**3.9**
F Red Clear	**0.5**	**1.0**	**0.5**	**1.0**	**0.5**	**1.0**	**0.5**	**1.0**

Phase Timing - Bank 1 <F Page>

Row		**E**
	RR-1 Delay	**0**
	RR-1 Clear	**10**
	EV-A Delay	**0**
	EV-A Clear	**1**
	EV-B Delay	**0**
	EV-B Clear	**1**
	EV-C Delay	**0**
	EV-C Clear	**1**
	EV-D Delay	**0**
	EV-D Clear	**1**
	RR-2 Delay	**0**
	RR-2 Clear	**10**
	View EV Delay	- - -
	View EV Clear	- - -
	View RR Delay	- - -
	View RR Clear	- - -

Preempt Timing

Row		**F**	Row
0	Permit	**12345678**	**0**
1	Red Lock	_____	**1**
2	Yellow Lock	_____	**2**
3	Min Recall	**_2___6__**	**3**
4	Ped Recall	_____	**4**
5	*View Set Peds*	**- - - - -**	**5**
6	Rest In Walk	_____	**6**
7	Red Rest	_____	**7**
8	Dual Entry	**___4___8**	**8**
9	Max Recall	_____	**9**
A	Soft Recall	_____	**A**
B	Max 2	_____	**B**
C	Cond. Service	_____	**C**
D	Man Cntrl Calls	_____	**D**
E	Yellow Start	**___4___8**	**E**
F	First Phases	**_2___6__**	**F**

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

Coordination <C Page>

Row	Column Numbers ---->	Plan 1	2	3	4	5	6	7	8	9	Row
	Plan Name ---->										
0	Cycle Length	90	90	110	120	100	100	100	100	100	0
1	Phase 1 - ForceOff	70	75	80	99	65	65	65	65	65	1
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0	2
3	Phase 3 - ForceOff	33	30	35	75	25	25	25	25	25	3
4	Phase 4 - ForceOff	49	50	55	55	40	40	40	40	40	4
5	Phase 5 - ForceOff	16	15	17	20	65	65	65	65	65	5
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0	6
7	Phase 7 - ForceOff	26	30	32	40	25	25	25	25	25	7
8	Phase 8 - ForceOff	49	50	55	75	40	40	40	40	40	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	30	19	42	57	0	0	0	0	0	A
B	Offset 2	0	0	0	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	0	0	1	12	12	12	12	12	0	D
E	Hold Release	90	90	255	255	255	255	255	255	0	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

(* = Coordination Recall)

Sync Phases <C Page>

Row		E	Row
0			0
1	Plan 1 - Sync	2 6	1
2	Plan 2 - Sync	2 6	2
3	Plan 3 - Sync	2 6	3
4	Plan 4 - Sync	2 6	4
5	Plan 5 - Sync	2 6	5
6	Plan 6 - Sync	2 6	6
7	Plan 7 - Sync	2 6	7
8	Plan 8 - Sync	2 6	8
9	Plan 9 - Sync	2 6	9
A	Coord Ped *		A
B	NEMA Hold		B
C			C
D			D
E			E
F			F

Configuration <E Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	4 7
C	EV-C Phases	1 6
D	EV-D Phases	3 8
E	Extra 1 Config. Bits	1 3 5
F	IC Select (Interconnect)	2

Configuration <E Page>

	F
RR Overlap A - Phases	
RR Overlap B - Phases	
RR Overlap C - Phases	
RR Overlap D - Phases	
Ped 2P	2
Ped 6P	6
Ped 4P	4
Ped 8P	8
Yellow Flash Phases	
Overlap A - Phases	
Overlap B - Phases	
Overlap C - Phases	
Overlap D - Phases	
Restricted Phases	
Assign 5 Outputs	

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	5

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Lag Phases <C Page>

Row		F	Row
0	Free Lag	2 4 6 8	0
1	Plan 1 - Lag	2 45 8	1
2	Plan 2 - Lag	2 45 8	2
3	Plan 3 - Lag	2 45 8	3
4	Plan 4 - Lag	23 5 8	4
5	Plan 5 - Lag	2 4 6 8	5
6	Plan 6 - Lag	2 4 6 8	6
7	Plan 7 - Lag	2 4 6 8	7
8	Plan 8 - Lag	2 4 6 8	8
9	Plan 9 - Lag	2 4 6 8	9
A	Coord Max *		A
B	Coord Lag *		B
C			C
D			D
E			E
F			F

Row	Time	Plan	Offset	Day of Week
0	00 : 00	E	A	1234567
1	00 : 00	E	A	1234567
2	00 : 00	E	A	1234567
3	00 : 00	E	A	_23456_
4	00 : 00	E	A	1____7
5	16 : 00	4	A	_23456_
6	18 : 00	E	A	1234567
7	00 : 00	0	0	_____
8	00 : 00	0	0	_____
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

TOD Coordination
<9 Key with C+D+9=0>

Time	Funct.	Day of Week	Column F Phases/Bits
06 : 00	E	1234567	_____8
00 : 00	E	1234567	_____7_
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____

TOD Function
<7 Key>

<D Page>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	_____
B	Holiday # 2 Date	0	0	0	_____
C	Holiday # 3 Date	0	0	0	_____

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	0.0	0.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	1
2	System Det. # 2	2
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	5
6	System Det. # 6	6
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8	Row
	Phase Names ----->									
0	Ped Walk	0	7	0	7	0	7	0	7	0
1	Ped FDW	0	10	0	10	0	10	0	10	1
2	Min Green	3	7	3	7	3	7	3	7	2
3	Type 3 Limit	0	0	0	0	0	0	0	0	3
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2	4
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5	5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0	6
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0	7
8	Max Limit	17	40	17	40	17	40	17	40	8
9	Max Limit 2	30	70	30	70	30	70	30	70	9
A	- - - - - -	0	0	0	0	0	0	0	0	A
B	Call To Phase	0	0	0	0	0	0	0	0	B
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	D
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0	E
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0	F

Phase Timing - Bank 3 <F Page>

Row	Delay Only --->	7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output	Row	
0		0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	0	
1		0	0								1	
2		0	0								2	
3		0	0								3	
4		0	0								4	
5		0	0								5	
6		0	0								6	
7		0	0								7	
8		0	0								8	
9	Limited Service	0	0								9	
A	Int. --->	- - -	0								A	**<--- Limited**
B		0	0								B	**Service**
C		0	0								C	**Interval**
D		0	0								D	(Set Dwell = 255)
E		0	0								E	
F		0	0								F	

Special Event Schedule <C Page with F+9+F=22>

INTERSECTION: Leucadia Blvd & Sidonia Rd

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **38**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **1/15/2019 12:13**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	**1**	<C+0+0>
Zone Number		<C+0+1>
Area Number	**0**	<C+0+2>
Area Address	**1**	<C+0+3>
QuicNet Channel	**Unknown**	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	**20**	<F+0+E>
Red Revert	**5.0**	<F+0+F>
All Red Start	**5.0**	<F+C+0>

Start / Revert Times

	Phase							
Column Numbers ----->	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Row *Phase Names ----->*								
0 Ped Walk	**0**	**0**	**0**	**5**	**0**	**5**	**0**	**7**
1 Ped FDW	**0**	**0**	**0**	**19**	**0**	**10**	**0**	**10**
2 Min Green	**3**	**10**	**3**	**4**	**4**	**10**	**3**	**7**
3 Type 3 Limit	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4 Added Initial	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.2**
5 Veh Extension	**0.5**	**3.0**	**0.5**	**2.0**	**2.0**	**3.5**	**0.5**	**3.5**
6 Max Gap	**0.5**	**5.0**	**0.5**	**2.0**	**2.0**	**5.0**	**0.5**	**5.0**
7 Min Gap	**0.5**	**2.0**	**0.5**	**2.0**	**2.0**	**2.0**	**0.5**	**2.0**
8 Max Limit	**17**	**40**	**17**	**25**	**25**	**40**	**17**	**40**
9 Max Limit 2	**30**	**70**	**30**	**70**	**30**	**70**	**30**	**70**
A - - - - - -	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
B Call To Phase	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
C Reduce By	**0.1**	**0.5**	**0.1**	**0.0**	**0.0**	**0.5**	**0.1**	**0.1**
D Reduce Every	**1.0**	**10.0**	**1.0**	**0.0**	**0.0**	**10.0**	**1.0**	**1.0**
E Yellow Change	**3.0**	**4.3**	**3.0**	**3.0**	**3.0**	**4.3**	**3.0**	**4.0**
F Red Clear	**0.0**	**1.0**	**0.0**	**0.5**	**0.5**	**1.0**	**0.0**	**1.0**

Phase Timing - Bank 1 <F Page>

Row	E	
RR-1 Delay	**0**	**0**
RR-1 Clear	**10**	**1**
EV-A Delay	**0**	**2**
EV-A Clear	**1**	**3**
EV-B Delay	**0**	**4**
EV-B Clear	**1**	**5**
EV-C Delay	**0**	**6**
EV-C Clear	**1**	**7**
EV-D Delay	**0**	**8**
EV-D Clear	**1**	**9**
RR-2 Delay	**0**	**A**
RR-2 Clear	**10**	**B**
View EV Delay	- - -	**C**
View EV Clear	- - -	**D**
View RR Delay	- - -	**E**
View RR Clear	- - -	**F**

Preempt Timing

	F	Row
Permit	**_2_456__**	**0**
Red Lock	_____	**1**
Yellow Lock	_____	**2**
Min Recall	**_2___6__**	**3**
Ped Recall	_____	**4**
View Set Peds	**- - - - -**	**5**
Rest In Walk	_____	**6**
Red Rest	_____	**7**
Dual Entry	_____	**8**
Max Recall	_____	**9**
Soft Recall	_____	**A**
Max 2	_____	**B**
Cond. Service	_____	**C**
Man Cntrl Calls	_____	**D**
Yellow Start	**___4____**	**E**
First Phases	**_2___6__**	**F**

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

(* = Coordination Recall)

Row	Column Numbers ---->	Plan 1	2	3	4	5	6	7	8	9	Row
	Plan Name ----->										
0	Cycle Length	90	90	110	120	0	0	0	0	0	0
1	Phase 1 - ForceOff	0	0	0	0	0	0	0	0	0	1
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0	2
3	Phase 3 - ForceOff	0	0	0	0	0	0	0	0	0	3
4	Phase 4 - ForceOff	30	32	35	40	0	0	0	0	0	4
5	Phase 5 - ForceOff	46	50	60	68	0	0	0	0	0	5
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0	6
7	Phase 7 - ForceOff	0	0	0	0	0	0	0	0	0	7
8	Phase 8 - ForceOff	0	0	40	0	0	0	0	0	0	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	13	13	10	32	0	0	0	0	0	A
B	Offset 2	0	0	0	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	15	15	15	15	0	0	0	0	0	D
E	Hold Release	90	90	100	105	0	0	0	0	0	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

Coordination <C Page>

Row		E	Row
			0
1	Plan 1 - Sync	2 6	1
2	Plan 2 - Sync	2 6	2
3	Plan 3 - Sync	2 6	3
4	Plan 4 - Sync	2 6	4
5	Plan 5 - Sync	2 6	5
6	Plan 6 - Sync	2 6	6
7	Plan 7 - Sync	2 6	7
8	Plan 8 - Sync	2 6	8
9	Plan 9 - Sync	2 6	9
A	Coord Ped *		A
B	NEMA Hold		B
C			C
D			D
E			E
F			F

Sync Phases <C Page>

Row	Column Numbers ---->	E	Row
0	Exclusive Phases		0
1	RR-1 Clear Phases		1
2	RR-2 Clear Phases		2
3	RR-2 Limited Service		3
4	Prot / Perm Phases		4
5	Overlap A - Green Omit		5
6	Overlap B - Green Omit		6
7	Overlap C - Green Omit		7
8	Overlap D - Green Omit		8
9	Overlap Yellow Flash		9
A	EV-A Phases	2 5	A
B	EV-B Phases	4	B
C	EV-C Phases	2 6	C
D	EV-D Phases		D
E	Extra 1 Config. Bits	1 3 5	E
F	IC Select (Interconnect)	2	F

Configuration <E Page>

	F
RR Overlap A - Phases	
RR Overlap B - Phases	
RR Overlap C - Phases	
RR Overlap D - Phases	
Ped 2P	
Ped 6P	6
Ped 4P	4
Ped 8P	
Yellow Flash Phases	
Overlap A - Phases	
Overlap B - Phases	
Overlap C - Phases	
Overlap D - Phases	
Restricted Phases	
Assign 5 Outputs	

Configuration <E Page>

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	0

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Row		F	Row
			0
1	Free Lag	2 4 6 8	1
2	Plan 1 - Lag	2 4 6 8	2
3	Plan 2 - Lag	2 4 6 8	3
4	Plan 3 - Lag	2 4 6 8	4
5	Plan 4 - Lag	2 4 6 8	5
6	Plan 5 - Lag	2 4 6 8	6
7	Plan 6 - Lag	2 4 6 8	7
8	Plan 7 - Lag	2 4 6 8	8
9	Plan 8 - Lag	2 4 6 8	9
A	Plan 9 - Lag	2 4 6 8	A
B	Coord Max *		B
C	Coord Lag *		C
D			D
E			E
F			F

Lag Phases <C Page>

TOD Coordination
<9 Key with C+D+9=0>

Row	Time	Plan	Offset	Day of Week
0	00 : 00	E	A	1234567
1	11 : 00	1	A	1234567
2	15 : 00	3	A	_23456_
3	06 : 30	2	A	_23456_
4	08 : 00	2	A	1____7
5	16 : 00	4	A	_23456_
6	18 : 00	E	A	1234567
7	00 : 00	0	0	_____
8	00 : 00	0	0	_____
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

TOD Function
<7 Key>

Time	Funct.	Day of Week	Column F Phases/Bits
04 : 00	E	1234567	_____78
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____

<D Page>

Holiday # 1 TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 2 TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 3 TOD Coordination
<9 Key with C+D+9=3>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Holiday Dates
<8 Key>

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	_____
B	Holiday # 2 Date	0	0	0	_____
C	Holiday # 3 Date	0	0	0	_____

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	0.0	0.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	0
2	System Det. # 2	0
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8	Row
	Phase Names ----->									
0	Ped Walk	0	7	0	7	0	7	0	7	0
1	Ped FDW	0	10	0	10	0	10	0	10	1
2	Min Green	3	7	3	7	3	7	3	7	2
3	Type 3 Limit	0	0	0	0	0	0	0	0	3
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2	4
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5	5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0	6
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0	7
8	Max Limit	17	40	17	40	17	40	17	40	8
9	Max Limit 2	30	70	30	70	30	70	30	70	9
A	- - - - - -	0	0	0	0	0	0	0	0	A
B	Call To Phase	0	0	0	0	0	0	0	0	B
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	D
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0	E
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0	F

Phase Timing - Bank 3 <F Page>

Row	Delay Only --->	7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output	Row	
0		0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	0	
1		0	0								1	
2		0	0								2	
3		0	0								3	
4		0	0								4	
5		0	0								5	
6		0	0								6	
7		0	0								7	
8		0	0								8	
9	Limited Service Int. --->	0	0								9	
A		- - -	0								A	**<--- Limited Service Interval** (Set Dwell = 255)
B		0	0								B	
C		0	0								C	
D		0	0								D	
E		0	0								E	
F		0	0								F	

Special Event Schedule <C Page with F+9+F=22>

INTERSECTION: Leucadia Blvd & Quail Gardens

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **37**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **1/15/2019 12:13**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	**1**	<C+0+0>
Zone Number		<C+0+1>
Area Number	**0**	<C+0+2>
Area Address	**1**	<C+0+3>
QuicNet Channel	**Unknown**	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	**20**	<F+0+E>
Red Revert	**5.0**	<F+0+F>
All Red Start	**5.0**	<F+C+0>

Start / Revert Times

	Phase							
Column Numbers ----->	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Row *Phase Names ----->*								
0 Ped Walk	**0**	**5**	**0**	**5**	**0**	**5**	**0**	**5**
1 Ped FDW	**0**	**16**	**0**	**22**	**0**	**17**	**0**	**22**
2 Min Green	**4**	**10**	**3**	**6**	**4**	**10**	**3**	**6**
3 Type 3 Limit	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4 Added Initial	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
5 Veh Extension	**2.0**	**4.5**	**0.5**	**2.0**	**2.0**	**3.5**	**0.5**	**2.0**
6 Max Gap	**2.0**	**5.0**	**0.5**	**2.0**	**2.0**	**5.0**	**0.5**	**2.0**
7 Min Gap	**2.0**	**2.0**	**0.5**	**2.0**	**2.0**	**2.0**	**0.5**	**2.0**
8 Max Limit	**25**	**90**	**17**	**25**	**20**	**90**	**17**	**25**
9 Max Limit 2	**30**	**70**	**30**	**70**	**30**	**70**	**30**	**70**
A - - - - - -	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
B Call To Phase	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
C Reduce By	**0.0**	**0.1**	**0.1**	**0.0**	**0.0**	**0.1**	**0.1**	**0.0**
D Reduce Every	**0.0**	**2.5**	**1.0**	**0.0**	**0.0**	**2.5**	**1.0**	**0.0**
E Yellow Change	**3.0**	**4.7**	**3.0**	**3.9**	**3.0**	**4.7**	**3.0**	**3.9**
F Red Clear	**0.5**	**2.0**	**0.0**	**1.0**	**0.5**	**2.0**	**0.0**	**1.0**

Phase Timing - Bank 1 <F Page>

Row	E	
	RR-1 Delay	**0**
	RR-1 Clear	**10**
	EV-A Delay	**0**
	EV-A Clear	**1**
	EV-B Delay	**0**
	EV-B Clear	**1**
	EV-C Delay	**0**
	EV-C Clear	**1**
	EV-D Delay	**0**
	EV-D Clear	**1**
	RR-2 Delay	**0**
	RR-2 Clear	**10**
	View EV Delay	- - -
	View EV Clear	- - -
	View RR Delay	- - -
	View RR Clear	- - -

Preempt Timing

Row	F	
0	Permit	**12_456_8**
1	Red Lock	_____
2	Yellow Lock	____**5**___
3	Min Recall	_**2**___**6**__
4	Ped Recall	_____
5	*View Set Peds*	**- - - - -**
6	Rest In Walk	_**2_4_6_8**
7	Red Rest	_____
8	Dual Entry	_____
9	Max Recall	___**4**___**8**
A	Soft Recall	_____
B	Max 2	_____
C	Cond. Service	_____
D	Man Cntrl Calls	_____
E	Yellow Start	_____
F	First Phases	___**4**___**8**

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

Coordination <C Page>

Row	Column Numbers ---->	Plan 1	2	3	4	5	6	7	8	9	Row
	Plan Name ---->										
0	Cycle Length	90	90	110	120	0	0	0	0	0	0
1	Phase 1 - ForceOff	59	59	87	27	0	0	0	0	0	1
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0	2
3	Phase 3 - ForceOff	0	0	0	0	0	0	0	0	0	3
4	Phase 4 - ForceOff	44	38	65	67	0	0	0	0	0	4
5	Phase 5 - ForceOff	59	55	20	87	0	0	0	0	0	5
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0	6
7	Phase 7 - ForceOff	0	0	0	0	0	0	0	0	0	7
8	Phase 8 - ForceOff	44	38	65	67	0	0	0	0	0	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	0	0	0	0	0	0	0	0	0	A
B	Offset 2	0	0	0	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	0	0	0	0	0	0	0	0	0	D
E	Hold Release	90	90	255	255	0	0	0	0	0	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

(* = Coordination Recall)

Sync Phases <C Page>

Row		E	Row
0			0
1	Plan 1 - Sync	_2___6__	1
2	Plan 2 - Sync	_2___6__	2
3	Plan 3 - Sync	_2___6__	3
4	Plan 4 - Sync	_2___6__	4
5	Plan 5 - Sync	_2___6__	5
6	Plan 6 - Sync	_2___6__	6
7	Plan 7 - Sync	_2___6__	7
8	Plan 8 - Sync	_2___6__	8
9	Plan 9 - Sync	_2___6__	9
A	Coord Ped *	_____	A
B	NEMA Hold	_____	B
C			C
D			D
E			E
F			F

Configuration <E Page>

Row	Column Numbers ---->	E	Row
0	Exclusive Phases	_____	0
1	RR-1 Clear Phases	_____	1
2	RR-2 Clear Phases	_____	2
3	RR-2 Limited Service	_____	3
4	Prot / Perm Phases	_____	4
5	Overlap A - Green Omit	_____	5
6	Overlap B - Green Omit	_____	6
7	Overlap C - Green Omit	_____	7
8	Overlap D - Green Omit	_____	8
9	Overlap Yellow Flash	_____	9
A	EV-A Phases	_2__5___	A
B	EV-B Phases	___4____	B
C	EV-C Phases	1____6__	C
D	EV-D Phases	_____8	D
E	Extra 1 Config. Bits	1_3_5___	E
F	IC Select (Interconnect)	_2_____	F

Configuration <E Page>

	F
RR Overlap A - Phases	_____
RR Overlap B - Phases	_____
RR Overlap C - Phases	_____
RR Overlap D - Phases	_____
Ped 2P	_2_____
Ped 6P	_____6__
Ped 4P	___4____
Ped 8P	_____8
Yellow Flash Phases	_____
Overlap A - Phases	_____
Overlap B - Phases	_____
Overlap C - Phases	_____
Overlap D - Phases	_____
Restricted Phases	_____
Assign 5 Outputs	_____

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	5

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Lag Phases <C Page>

Row		F	Row
0	Free Lag	_2_4_6_8	0
1	Plan 1 - Lag	_2_4_6_8	1
2	Plan 2 - Lag	_2_4_6_8	2
3	Plan 3 - Lag	_2_45__8	3
4	Plan 4 - Lag	1__4_6_8	4
5	Plan 5 - Lag	_2_45__8	5
6	Plan 6 - Lag	_2_4_6_8	6
7	Plan 7 - Lag	_2_4_6_8	7
8	Plan 8 - Lag	_2_4_6_8	8
9	Plan 9 - Lag	_2_4_6_8	9
A	Coord Max *	_____	A
B	Coord Lag *	____5___	B
C			C
D			D
E			E
F			F

Row	Time	Plan	Offset	Day of Week
0	00 : 00	E	A	1234567
1	11 : 00	1	A	1234567
2	15 : 00	3	A	_23456_
3	06 : 30	2	A	_23456_
4	08 : 00	2	A	1____7
5	16 : 00	4	A	_23456_
6	18 : 00	E	A	1234567
7	00 : 00	0	0	_____
8	00 : 00	0	0	_____
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

TOD Coordination
<9 Key with C+D+9=0>

Time	Funct.	Day of Week	Column F Phases/Bits
06 : 00	E	1234567	_____8
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____

TOD Function
<7 Key>

<D Page>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week	Row
00 : 00	0	0	_____	0
00 : 00	0	0	_____	1
00 : 00	0	0	_____	2
00 : 00	0	0	_____	3
00 : 00	0	0	_____	4
00 : 00	0	0	_____	5
00 : 00	0	0	_____	6
00 : 00	0	0	_____	7
00 : 00	0	0	_____	8
00 : 00	0	0	_____	9
00 : 00	0	0	_____	A
00 : 00	0	0	_____	B
00 : 00	0	0	_____	C
00 : 00	0	0	_____	D
00 : 00	0	0	_____	E
00 : 00	0	0	_____	F

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	_____
B	Holiday # 2 Date	0	0	0	_____
C	Holiday # 3 Date	0	0	0	_____

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	25.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	25.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	0.0	0.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	0
2	System Det. # 2	0
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8	Row
	Phase Names ----->									
0	Ped Walk	0	7	0	7	0	7	0	7	0
1	Ped FDW	0	10	0	10	0	10	0	10	1
2	Min Green	3	7	3	7	3	7	3	7	2
3	Type 3 Limit	0	0	0	0	0	0	0	0	3
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2	4
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5	5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0	6
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0	7
8	Max Limit	17	40	17	40	17	40	17	40	8
9	Max Limit 2	30	70	30	70	30	70	30	70	9
A	- - - - - -	0	0	0	0	0	0	0	0	A
B	Call To Phase	0	0	0	0	0	0	0	0	B
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	D
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0	E
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0	F

Phase Timing - Bank 3 <F Page>

Row	Delay Only --->	7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output	Row	
0		0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	0	
1		0	0								1	
2		0	0								2	
3		0	0								3	
4		0	0								4	
5		0	0								5	
6		0	0								6	
7		0	0								7	
8		0	0								8	
9	Limited Service Int. --->	0	0								9	
A		- - -	0								A	**<--- Limited Service Interval** (Set Dwell = 255)
B		0	0								B	
C		0	0								C	
D		0	0								D	
E		0	0								E	
F		0	0								F	

Special Event Schedule <C Page with F+9+F=22>

INTERSECTION: Leucadia Blvd & Garden View Rd

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **36**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **1/15/2019 12:13**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	**1**	<C+0+0>
Zone Number		<C+0+1>
Area Number	**0**	<C+0+2>
Area Address	**1**	<C+0+3>
QuicNet Channel	**Unknown**	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	**20**	<F+0+E>
Red Revert	**5.0**	<F+0+F>
All Red Start	**5.0**	<F+C+0>

Start / Revert Times

	Phase							
Column Numbers ---->	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Row *Phase Names ---->*								
0 Ped Walk	**0**	**5**	**0**	**5**	**0**	**5**	**0**	**5**
1 Ped FDW	**0**	**26**	**0**	**27**	**0**	**26**	**0**	**29**
2 Min Green	**5**	**10**	**4**	**10**	**5**	**10**	**4**	**10**
3 Type 3 Limit	**0**	**25**	**0**	**0**	**0**	**25**	**0**	**0**
4 Added Initial	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
5 Veh Extension	**3.0**	**3.0**	**2.0**	**2.0**	**3.0**	**3.0**	**2.0**	**2.0**
6 Max Gap	**3.0**	**5.0**	**2.0**	**2.0**	**3.0**	**5.0**	**2.0**	**2.0**
7 Min Gap	**3.0**	**2.0**	**2.0**	**2.0**	**3.0**	**2.0**	**2.0**	**2.0**
8 Max Limit	**25**	**35**	**25**	**20**	**25**	**35**	**25**	**20**
9 Max Limit 2	**30**	**45**	**30**	**70**	**30**	**45**	**30**	**30**
A - - - - - -	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
B Call To Phase	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
C Reduce By	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
D Reduce Every	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
E Yellow Change	**3.0**	**4.7**	**3.0**	**4.3**	**3.0**	**4.7**	**3.0**	**4.3**
F Red Clear	**0.5**	**1.0**	**0.5**	**1.0**	**0.5**	**1.0**	**0.5**	**1.0**

Phase Timing - Bank 1 <F Page>

Row		**E**
	RR-1 Delay	**0**
	RR-1 Clear	**10**
	EV-A Delay	**0**
	EV-A Clear	**3**
	EV-B Delay	**0**
	EV-B Clear	**3**
	EV-C Delay	**0**
	EV-C Clear	**3**
	EV-D Delay	**0**
	EV-D Clear	**3**
	RR-2 Delay	**0**
	RR-2 Clear	**10**
	View EV Delay	- - -
	View EV Clear	- - -
	View RR Delay	- - -
	View RR Clear	- - -

Preempt Timing

Row		**F**
	Permit	**12345678**
	Red Lock	**____5___**
	Yellow Lock	**_____**
	Min Recall	**_2___6__**
	Ped Recall	**_____**
	View Set Peds	**- - - - -**
	Rest In Walk	**_____**
	Red Rest	**_____**
	Dual Entry	**_____**
	Max Recall	**_____**
	Soft Recall	**_2___6__**
	Max 2	**_____**
	Cond. Service	**_____**
	Man Cntrl Calls	**_____**
	Yellow Start	**_____8**
	First Phases	**_2___6__**

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

(* = Coordination Recall)

Row	Column Numbers ----> / Plan Name ---->	Plan 1	2	3	4	5	6	7	8	9	Row
0	Cycle Length	135	130	140	140	0	0	0	0	140	0
1	Phase 1 - ForceOff	30	21	32	22	0	0	0	0	22	1
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0	2
3	Phase 3 - ForceOff	61	42	62	44	0	0	0	0	44	3
4	Phase 4 - ForceOff	89	71	89	73	0	0	0	0	73	4
5	Phase 5 - ForceOff	114	97	115	100	0	0	0	0	100	5
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0	6
7	Phase 7 - ForceOff	89	42	69	44	0	0	0	0	44	7
8	Phase 8 - ForceOff	68	71	90	73	0	0	0	0	73	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	60	79	70	50	0	0	0	0	53	A
B	Offset 2	77	0	60	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	0	0	0	0	0	0	0	0	0	D
E	Hold Release	125	130	135	135	0	0	0	0	135	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

Coordination <C Page>

Row		E	Row
			0
1	Plan 1 - Sync	_2___6__	1
2	Plan 2 - Sync	_2___6__	2
3	Plan 3 - Sync	_2___6__	3
4	Plan 4 - Sync	_2___6__	4
5	Plan 5 - Sync	_2___6__	5
6	Plan 6 - Sync	_2___6__	6
7	Plan 7 - Sync	_2___6__	7
8	Plan 8 - Sync	_2___6__	8
9	Plan 9 - Sync	_2___6__	9
A	Coord Ped *	_____	A
B	NEMA Hold	_____	B
C			C
D			D
E			E
F			F

Sync Phases <C Page>

Row	Column Numbers ---->	E	Row
0	Exclusive Phases	_____	0
1	RR-1 Clear Phases	_____	1
2	RR-2 Clear Phases	_____	2
3	RR-2 Limited Service	_____	3
4	Prot / Perm Phases	_____	4
5	Overlap A - Green Omit	_____	5
6	Overlap B - Green Omit	_____	6
7	Overlap C - Green Omit	_____	7
8	Overlap D - Green Omit	_____	8
9	Overlap Yellow Flash	_____	9
A	EV-A Phases	_2__5___	A
B	EV-B Phases	___4__7_	B
C	EV-C Phases	1____6__	C
D	EV-D Phases	__3____8	D
E	Extra 1 Config. Bits	1_3_5___	E
F	IC Select (Interconnect)	_2_____	F

Configuration <E Page>

	F
RR Overlap A - Phases	_____
RR Overlap B - Phases	_____
RR Overlap C - Phases	_____
RR Overlap D - Phases	_____
Ped 2P	_2_____
Ped 6P	_____6__
Ped 4P	___4____
Ped 8P	_____8
Yellow Flash Phases	_____
Overlap A - Phases	_____
Overlap B - Phases	_____
Overlap C - Phases	_____
Overlap D - Phases	_____
Restricted Phases	_____
Assign 5 Outputs	_____

Configuration <E Page>

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	13

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Row		F	Row
0	Free Lag	_2_4_6_8	0
1	Plan 1 - Lag	1__4_67_	1
2	Plan 2 - Lag	1__4_6_8	2
3	Plan 3 - Lag	1__4_6_8	3
4	Plan 4 - Lag	1__4_6_8	4
5	Plan 5 - Lag	_2_4_6_8	5
6	Plan 6 - Lag	_2_4_6_8	6
7	Plan 7 - Lag	_2_4_6_8	7
8	Plan 8 - Lag	_2_4_6_8	8
9	Plan 9 - Lag	1__4_6_8	9
A	Coord Max *	_____	A
B	Coord Lag *	_____	B
C			C
D			D
E			E
F			F

Lag Phases <C Page>

Row	Time	Plan	Offset	Day of Week
0	00 : 00	E	A	1234567
1	06 : 30	2	A	_23456_
2	07 : 15	4	A	_23456_
3	09 : 00	2	A	_23456_
4	11 : 00	1	A	1234567
5	15 : 45	3	A	_23456_
6	18 : 00	1	A	_23456_
7	19 : 00	E	A	1234567
8	18 : 00	2	A	1_____7
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

TOD Coordination
<9 Key with C+D+9=0>

Time	Funct.	Day of Week	Column F Phases/Bits
06 : 00	E	1234567	_____8
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____

TOD Function
<7 Key>

<D Page>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week	Row
00 : 00	0	0	_____	0
00 : 00	0	0	_____	1
00 : 00	0	0	_____	2
00 : 00	0	0	_____	3
00 : 00	0	0	_____	4
00 : 00	0	0	_____	5
00 : 00	0	0	_____	6
00 : 00	0	0	_____	7
00 : 00	0	0	_____	8
00 : 00	0	0	_____	9
00 : 00	0	0	_____	A
00 : 00	0	0	_____	B
00 : 00	0	0	_____	C
00 : 00	0	0	_____	D
00 : 00	0	0	_____	E
00 : 00	0	0	_____	F

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	_____
B	Holiday # 2 Date	0	0	0	_____
C	Holiday # 3 Date	0	0	0	_____

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	0.0	0.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	0
2	System Det. # 2	0
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8	Row
	Phase Names ----->									
0	Ped Walk	0	7	0	7	0	7	0	7	0
1	Ped FDW	0	10	0	10	0	10	0	10	1
2	Min Green	3	7	3	7	3	7	3	7	2
3	Type 3 Limit	0	0	0	0	0	0	0	0	3
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2	4
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5	5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0	6
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0	7
8	Max Limit	17	40	17	40	17	40	17	40	8
9	Max Limit 2	30	70	30	70	30	70	30	70	9
A	- - - - - -	0	0	0	0	0	0	0	0	A
B	Call To Phase	0	0	0	0	0	0	0	0	B
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	D
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0	E
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0	F

Phase Timing - Bank 3 <F Page>

Row	Delay Only --->	7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output	Row
0		0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	0
1		0	0								1
2		0	0								2
3		0	0								3
4		0	0								4
5		0	0								5
6		0	0								6
7		0	0								7
8		0	0								8
9	Limited Service Int. --->	0	0								9
A		- - -	0								A
B		0	0								B
C		0	0								C
D		0	0								D
E		0	0								E
F		0	0								F

<--- Limited Service Interval
(Set Dwell = 255)

Special Event Schedule <C Page with F+9+F=22>

INTERSECTION: Leucadia Blvd & Town Center Pl

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **35**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **1/15/2019 12:13**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	**1**	<C+0+0>
Zone Number		<C+0+1>
Area Number	**0**	<C+0+2>
Area Address	**1**	<C+0+3>
QuicNet Channel	**Unknown**	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	**20**	<F+0+E>
Red Revert	**5.0**	<F+0+F>
All Red Start	**5.0**	<F+C+0>

Start / Revert Times

	Phase							
Column Numbers ----->	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Row *Phase Names ----->*								
0 Ped Walk	**0**	**5**	**5**	**5**	**0**	**5**	**0**	**0**
1 Ped FDW	**0**	**23**	**31**	**27**	**0**	**20**	**0**	**0**
2 Min Green	**4**	**10**	**4**	**4**	**4**	**10**	**0**	**0**
3 Type 3 Limit	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4 Added Initial	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
5 Veh Extension	**2.0**	**5.0**	**2.0**	**2.0**	**2.0**	**5.0**	**0.0**	**0.0**
6 Max Gap	**2.0**	**5.0**	**2.0**	**2.0**	**2.0**	**5.0**	**0.0**	**0.0**
7 Min Gap	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**0.0**	**0.0**
8 Max Limit	**25**	**30**	**35**	**25**	**25**	**15**	**0**	**0**
9 Max Limit 2	**30**	**70**	**70**	**70**	**30**	**70**	**0**	**0**
A - - - - - -	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
B Call To Phase	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
C Reduce By	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**
D Reduce Every	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**0.0**	**0.0**
E Yellow Change	**3.0**	**4.3**	**3.0**	**3.0**	**3.0**	**4.3**	**0.0**	**0.0**
F Red Clear	**0.5**	**1.0**	**1.0**	**1.0**	**0.5**	**1.0**	**0.0**	**0.0**

Phase Timing - Bank 1 <F Page>

Row		E
0	RR-1 Delay	**0**
1	RR-1 Clear	**10**
2	EV-A Delay	**0**
3	EV-A Clear	**1**
4	EV-B Delay	**0**
5	EV-B Clear	**1**
6	EV-C Delay	**0**
7	EV-C Clear	**1**
8	EV-D Delay	**0**
9	EV-D Clear	**1**
A	RR-2 Delay	**0**
B	RR-2 Clear	**10**
C	*View EV Delay*	- - -
D	*View EV Clear*	- - -
E	*View RR Delay*	- - -
F	*View RR Clear*	- - -

Preempt Timing

Row		F
0	Permit	**123456__**
1	Red Lock	_____
2	Yellow Lock	_____
3	Min Recall	**_2___6__**
4	Ped Recall	_____
5	*View Set Peds*	**- - - - -**
6	Rest In Walk	_____
7	Red Rest	_____
8	Dual Entry	_____
9	Max Recall	_____
A	Soft Recall	_____
B	Max 2	_____
C	Cond. Service	_____
D	Man Cntrl Calls	_____
E	Yellow Start	**1___5___**
F	First Phases	**_2___6__**

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

(* = Coordination Recall)

Row	Column Numbers ---->	Plan 1	2	3	4	5	6	7	8	9	Row
	Plan Name ---->										
0	Cycle Length	135	130	140	140	0	0	0	0	140	0
1	Phase 1 - ForceOff	34	24	35	25	0	0	0	0	101	1
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0	2
3	Phase 3 - ForceOff	102	75	100	77	0	0	0	0	77	3
4	Phase 4 - ForceOff	62	49	63	51	0	0	0	0	51	4
5	Phase 5 - ForceOff	123	96	123	100	0	0	0	0	25	5
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0	6
7	Phase 7 - ForceOff	0	0	0	0	0	0	0	0	0	7
8	Phase 8 - ForceOff	0	0	0	0	0	0	0	0	0	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	58	95	70	40	0	0	0	0	53	A
B	Offset 2	84	0	51	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	0	0	0	0	0	0	0	0	0	D
E	Hold Release	135	130	140	140	0	0	0	0	140	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

Coordination <C Page>

Row		E	Row
			0
1	Plan 1 - Sync	_2___6__	1
2	Plan 2 - Sync	_2___6__	2
3	Plan 3 - Sync	_2___6__	3
4	Plan 4 - Sync	_2___6__	4
5	Plan 5 - Sync	_2___6__	5
6	Plan 6 - Sync	_2___6__	6
7	Plan 7 - Sync	_2___6__	7
8	Plan 8 - Sync	_2___6__	8
9	Plan 9 - Sync	_2___6__	9
A	Coord Ped *	_____	A
B	NEMA Hold	_____	B
C			C
D			D
E			E
F			F

Sync Phases <C Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	_____
1	RR-1 Clear Phases	_____
2	RR-2 Clear Phases	_____
3	RR-2 Limited Service	_____
4	Prot / Perm Phases	_____
5	Overlap A - Green Omit	_2_____
6	Overlap B - Green Omit	_____6__
7	Overlap C - Green Omit	_____
8	Overlap D - Green Omit	_____
9	Overlap Yellow Flash	_____
A	EV-A Phases	_2__5___
B	EV-B Phases	___4____
C	EV-C Phases	1____6__
D	EV-D Phases	__3_____
E	Extra 1 Config. Bits	1_3_5___
F	IC Select (Interconnect)	_2_____

Configuration <E Page>

	F
RR Overlap A - Phases	_____
RR Overlap B - Phases	_____
RR Overlap C - Phases	_____
RR Overlap D - Phases	_____
Ped 2P	_2_____
Ped 6P	_____6__
Ped 4P	___4____
Ped 8P	__3_____
Yellow Flash Phases	_____
Overlap A - Phases	_23_____
Overlap B - Phases	___4_6__
Overlap C - Phases	_____
Overlap D - Phases	_____
Restricted Phases	_____
Assign 5 Outputs	1_____

Configuration <E Page>

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	0

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Row		F	Row
0	Free Lag	_2_4_6_8	0
1	Plan 1 - Lag	1_3__6_8	1
2	Plan 2 - Lag	1_3__6_8	2
3	Plan 3 - Lag	1_3__6_8	3
4	Plan 4 - Lag	1_3__6_8	4
5	Plan 5 - Lag	_2_4_6_8	5
6	Plan 6 - Lag	_2_4_6_8	6
7	Plan 7 - Lag	_2_4_6_8	7
8	Plan 8 - Lag	_2_4_6_8	8
9	Plan 9 - Lag	_23_5__8	9
A	Coord Max *	_____	A
B	Coord Lag *	_____	B
C			C
D			D
E			E
F			F

Lag Phases <C Page>

TOD Coordination
<9 Key with C+D+9=0>

Row	Time	Plan	Offset	Day of Week
0	00 : 00	E	A	1234567
1	06 : 30	2	A	_23456_
2	07 : 15	4	A	_23456_
3	09 : 00	2	A	_23456_
4	11 : 00	1	A	1234567
5	15 : 45	3	A	_23456_
6	18 : 00	1	A	_23456_
7	19 : 00	E	A	1234567
8	18 : 00	2	A	1_____7
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

TOD Function
<7 Key>

Time	Funct.	Day of Week	Column F Phases/Bits
06 : 00	E	1234567	_____8
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____

<D Page>

Holiday # 1 TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 2 TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 3 TOD Coordination
<9 Key with C+D+9=3>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	_____
B	Holiday # 2 Date	0	0	0	_____
C	Holiday # 3 Date	0	0	0	_____

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	0.0	0.0	0
B	Overlap B	0.0	3.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	0
2	System Det. # 2	0
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8	Row
	Phase Names ----->									
0	Ped Walk	0	7	0	7	0	7	0	7	0
1	Ped FDW	0	10	0	10	0	10	0	10	1
2	Min Green	3	7	3	7	3	7	3	7	2
3	Type 3 Limit	0	0	0	0	0	0	0	0	3
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2	4
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5	5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0	6
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0	7
8	Max Limit	17	40	17	40	17	40	17	40	8
9	Max Limit 2	30	70	30	70	30	70	30	70	9
A	- - - - - -	0	0	0	0	0	0	0	0	A
B	Call To Phase	0	0	0	0	0	0	0	0	B
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	D
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0	E
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0	F

Phase Timing - Bank 3 <F Page>

Row	Delay Only --->	7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output	Row	
0		0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	0	
1		0	0								1	
2		0	0								2	
3		0	0								3	
4		0	0								4	
5		0	0								5	
6		0	0								6	
7		0	0								7	
8		0	0								8	
9	Limited Service Int. --->	0	0								9	
A		- - -	0								A	**<--- Limited Service Interval** (Set Dwell = 255)
B		0	0								B	
C		0	0								C	
D		0	0								D	
E		0	0								E	
F		0	0								F	

Special Event Schedule <C Page with F+9+F=22>

INTERSECTION: ECR & Leucadia-Olvenhain

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **24**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **1/15/2019 12:09**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	**1**	<C+0+0>
Zone Number		<C+0+1>
Area Number	**0**	<C+0+2>
Area Address	**1**	<C+0+3>
QuicNet Channel	**Unknown**	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	**20**	<F+0+E>
Red Revert	**5.0**	<F+0+F>
All Red Start	**5.0**	<F+C+0>

Start / Revert Times

	Phase							
Column Numbers ---->	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Row *Phase Names ---->*								
0 Ped Walk	**0**	**4**	**0**	**5**	**5**	**5**	**0**	**5**
1 Ped FDW	**0**	**34**	**0**	**31**	**31**	**30**	**0**	**34**
2 Min Green	**5**	**10**	**5**	**10**	**10**	**10**	**5**	**10**
3 Type 3 Limit	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4 Added Initial	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
5 Veh Extension	**2.0**	**3.5**	**2.0**	**3.5**	**3.5**	**3.5**	**2.0**	**3.5**
6 Max Gap	**2.0**	**5.0**	**2.0**	**5.0**	**5.0**	**5.0**	**2.0**	**5.0**
7 Min Gap	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
8 Max Limit	**40**	**40**	**30**	**40**	**40**	**40**	**30**	**40**
9 Max Limit 2	**40**	**70**	**40**	**70**	**70**	**70**	**40**	**70**
A - - - - - -	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
B Call To Phase	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
C Reduce By	**0.0**	**0.5**	**0.0**	**0.5**	**0.5**	**0.5**	**0.0**	**0.5**
D Reduce Every	**0.0**	**5.0**	**0.0**	**5.0**	**5.0**	**5.0**	**0.0**	**5.0**
E Yellow Change	**3.6**	**4.7**	**3.6**	**5.0**	**3.6**	**4.7**	**3.6**	**5.0**
F Red Clear	**1.0**	**1.5**	**1.0**	**1.5**	**1.5**	**1.5**	**1.0**	**1.5**

Phase Timing - Bank 1 <F Page>

Row	E
RR-1 Delay	**0**
RR-1 Clear	**10**
EV-A Delay	**0**
EV-A Clear	**1**
EV-B Delay	**0**
EV-B Clear	**1**
EV-C Delay	**0**
EV-C Clear	**1**
EV-D Delay	**0**
EV-D Clear	**1**
RR-2 Delay	**0**
RR-2 Clear	**10**
View EV Delay	- - -
View EV Clear	- - -
View RR Delay	- - -
View RR Clear	- - -

Preempt Timing

Row	F
Permit	**12345678**
Red Lock	_____
Yellow Lock	**_23__6__**
Min Recall	**___4___8**
Ped Recall	_____
View Set Peds	**- - - - -**
Rest In Walk	_____
Red Rest	_____
Dual Entry	_____
Max Recall	_____
Soft Recall	_____
Max 2	_____
Cond. Service	_____
Man Cntrl Calls	_____
Yellow Start	**__3___7_**
First Phases	**___4___8**

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

Coordination <C Page>

Row	Column Numbers ---->	Plan 1	2	3	4	5	6	7	8	9	Row
	Plan Name ---->										
0	Cycle Length	135	130	140	140	0	0	0	140	140	0
1	Phase 1 - ForceOff	100	62	102	71	0	0	0	9	71	1
2	Phase 2 - ForceOff	64	90	65	95	0	0	0	60	95	2
3	Phase 3 - ForceOff	26	113	28	118	0	0	0	27	118	3
4	Phase 4 - ForceOff	0	0	0	0	0	0	0	0	0	4
5	Phase 5 - ForceOff	54	44	55	95	0	0	0	54	95	5
6	Phase 6 - ForceOff	100	90	102	77	0	0	0	99	77	6
7	Phase 7 - ForceOff	117	26	125	25	0	0	0	121	25	7
8	Phase 8 - ForceOff	0	0	0	0	0	0	0	0	0	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	0	0	122	99	0	0	0	25	99	A
B	Offset 2	0	0	0	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	0	0	0	33	0	0	0	30	30	D
E	Hold Release	255	120	145	135	0	0	0	140	135	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

(* = Coordination Recall)

Sync Phases <C Page>

Row		E	Row
0			0
1	Plan 1 - Sync	4 8	1
2	Plan 2 - Sync	4 8	2
3	Plan 3 - Sync	4 8	3
4	Plan 4 - Sync	4 8	4
5	Plan 5 - Sync	4 8	5
6	Plan 6 - Sync	4 8	6
7	Plan 7 - Sync	4 8	7
8	Plan 8 - Sync	4 8	8
9	Plan 9 - Sync	4 8	9
A	Coord Ped *		A
B	NEMA Hold		B
C			C
D			D
E			E
F			F

Configuration <E Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	8
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	4 7
C	EV-C Phases	1 6
D	EV-D Phases	3 8
E	Extra 1 Config. Bits	1 3 5
F	IC Select (Interconnect)	2

Configuration <E Page>

	F
RR Overlap A - Phases	
RR Overlap B - Phases	
RR Overlap C - Phases	
RR Overlap D - Phases	
Ped 2P	2
Ped 6P	6
Ped 4P	4
Ped 8P	8
Yellow Flash Phases	
Overlap A - Phases	1 8
Overlap B - Phases	
Overlap C - Phases	
Overlap D - Phases	
Restricted Phases	
Assign 5 Outputs	1

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	8

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	1

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Lag Phases <C Page>

Row		F	Row
0	Free Lag	2 4 6 8	0
1	Plan 1 - Lag	1 3 6 8	1
2	Plan 2 - Lag	2 4 67	2
3	Plan 3 - Lag	1 3 6 8	3
4	Plan 4 - Lag	2 45 7	4
5	Plan 5 - Lag	2 4 6 8	5
6	Plan 6 - Lag	2 4 6 8	6
7	Plan 7 - Lag	2 4 6 8	7
8	Plan 8 - Lag	1 3 6 8	8
9	Plan 9 - Lag	2 45 7	9
A	Coord Max *		A
B	Coord Lag *		B
C			C
D			D
E			E
F			F

TOD Coordination
<9 Key with C+D+9=0>

Row	Time	Plan	Offset	Day of Week
0	00 : 00	E	A	1234567
1	06 : 28	2	A	_23456_
2	07 : 12	4	A	_23456_
3	08 : 58	2	A	_23456_
4	10 : 58	1	A	1234567
5	15 : 42	3	A	_23456_
6	18 : 00	1	A	_23456_
7	19 : 00	E	A	1234567
8	08 : 00	2	A	1_____7
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

TOD Function
<7 Key>

Time	Funct.	Day of Week	Column F Phases/Bits
05 : 00	E	1234567	_____78
15 : 45	9	_23456_	__3____
17 : 30	9	_23456_	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____

<D Page>

Holiday # 1 TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 2 TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 3 TOD Coordination
<9 Key with C+D+9=3>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Holiday Dates
<8 Key>

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	_____
B	Holiday # 2 Date	0	0	0	_____
C	Holiday # 3 Date	0	0	0	_____

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	0.0	0.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	0
2	System Det. # 2	0
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8	Row
	Phase Names ----->									
0	Ped Walk	0	7	0	7	0	7	0	7	0
1	Ped FDW	0	10	0	10	0	10	0	10	1
2	Min Green	3	7	3	7	3	7	3	7	2
3	Type 3 Limit	0	0	0	0	0	0	0	0	3
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2	4
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5	5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0	6
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0	7
8	Max Limit	17	40	17	40	17	40	17	40	8
9	Max Limit 2	30	70	30	70	30	70	30	70	9
A	- - - - - -	0	0	0	0	0	0	0	0	A
B	Call To Phase	0	0	0	0	0	0	0	0	B
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	D
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0	E
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0	F

Phase Timing - Bank 3 <F Page>

Row	Delay Only --->	7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output	Row	
0		0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	0	
1		0	0								1	
2		0	0								2	
3		0	0								3	
4		0	0								4	
5		0	0								5	
6		0	0								6	
7		0	0								7	
8		0	0								8	
9	Limited Service Int. --->	0	0								9	
A		- - -	0								A	**<--- Limited Service Interval** (Set Dwell = 255)
B		0	0								B	
C		0	0								C	
D		0	0								D	
E		0	0								E	
F		0	0								F	

Special Event Schedule <C Page with F+9+F=22>

Appendix B
Project Driveway Counts

Prepared by National Data & Surveying Services

IN & OUT

Fox Point Farms Dwy Entrance @ Quail Gardens Dr

Day: Thursday
Date: 10/24/2019

City: Encinitas
Project #: CA19_4411_001

DAILY TOTALS	IN	OUT		Total
	167	167		334

AM Period	IN		OUT		TOTAL		PM Period	IN		OUT		TOTAL	
0:00	0		0		0		12:00	2		3		5	
0:15	0		0		0		12:15	5		4		9	
0:30	0		0		0		12:30	1		1		2	
0:45	0		0		0		12:45	3	11	2	10	5	21
1:00	0		0		0		13:00	2		5		7	
1:15	0		0		0		13:15	1		2		3	
1:30	0		0		0		13:30	3		8		11	
1:45	0		0		0		13:45	2	8	6	21	8	29
2:00	0		0		0		14:00	2		3		5	
2:15	0		0		0		14:15	1		3		4	
2:30	0		0		0		14:30	0		2		2	
2:45	0		0		0		14:45	2	5	3	11	5	16
3:00	0		0		0		15:00	1		2		3	
3:15	0		0		0		15:15	1		3		4	
3:30	0		0		0		15:30	3		4		7	
3:45	0		0		0		15:45	1	6	5	14	6	20
4:00	1		0		1		16:00	1		6		7	
4:15	0		0		0		16:15	5		5		10	
4:30	4		0		4		16:30	2		8		10	
4:45	8	13	1	1	9	14	16:45	2	10	2	21	4	31
5:00	0		0		0		17:00	1		2		3	
5:15	7		2		9		17:15	1		3		4	
5:30	2		0		2		17:30	0		2		2	
5:45	8	17	0	2	8	19	17:45	1	3	0	7	1	10
6:00	9		3		12		18:00	0		0		0	
6:15	7		5		12		18:15	0		1		1	
6:30	7		3		10		18:30	0		3		3	
6:45	3	26	3	14	6	40	18:45	0		1	5	1	5
7:00	3		0		3		19:00	0		1		1	
7:15	4		1		5		19:15	0		0		0	
7:30	2		1		3		19:30	0		0		0	
7:45	3	12	2	4	5	16	19:45	0		0	1	0	1
8:00	1		3		4		20:00	0		0		0	
8:15	5		3		8		20:15	0		0		0	
8:30	5		1		6		20:30	0		0		0	
8:45	5	16	4	11	9	27	20:45	0		0		0	
9:00	4		6		10		21:00	0		0		0	
9:15	1		1		2		21:15	0		0		0	
9:30	4		2		6		21:30	0		0		0	
9:45	7	16	3	12	10	28	21:45	0		0		0	
10:00	7		7		14		22:00	0		0		0	
10:15	0		4		4		22:15	1		0		1	
10:30	2		1		3		22:30	0		0		0	
10:45	2	11	5	17	7	28	22:45	0	1	1	1	1	2
11:00	0		4		4		23:00	0		0		0	
11:15	5		2		7		23:15	0		0		0	
11:30	5		6		11		23:30	0		0		0	
11:45	2	12	3	15	5	27	23:45	0		0		0	
TOTALS		123		76		**199**	**TOTALS**		44		91		**135**
SPLIT %		61.8%		38.2%		**59.6%**	**SPLIT %**		32.6%		67.4%		**40.4%**

DAILY TOTALS	IN	OUT		Total
	167	167		334

AM Peak Hour	5:45	10:00			**5:45**	**PM Peak Hour**	12:00	15:45			**15:45**
AM Pk Volume	31	17			**42**	**PM Pk Volume**	11	24			**33**
Pk Hr Factor	0.861	0.607			**0.875**	**Pk Hr Factor**	0.550	0.750			**0.825**
7 - 9 Volume	28	15	0	0	**43**	**4 - 6 Volume**	13	28	0	0	**41**
7 - 9 Peak Hour	8:00	8:00			**8:00**	**4 - 6 Peak Hour**	16:00	16:00			**16:00**
7 - 9 Pk Volume	16	11	0	0	**27**	**4 - 6 Pk Volume**	10	21	0	0	**31**
Pk Hr Factor	0.800	0.688	0.000	0.000	**0.750**	**Pk Hr Factor**	0.500	0.656	0.000	0.000	**0.775**

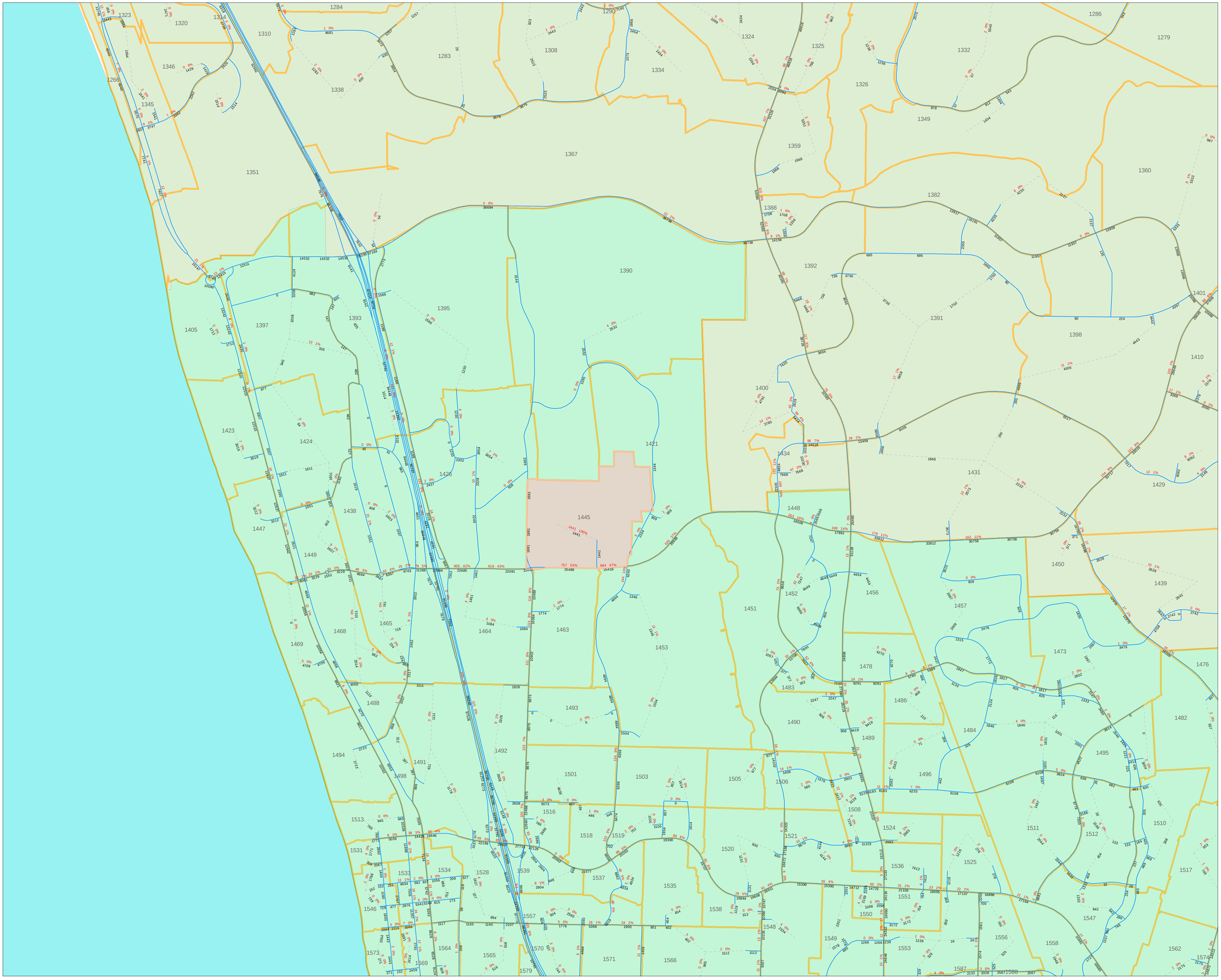
Appendix C
Select Zone Analysis

SANDAG
Series13
version13_3_2
Scenario ID 991

2020rc

Select Zone Run

TAZ 1445



\# Select Zone Vol and %

\# Model Estimated ADT

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N

0 0.08 0.16 0.24
Miles

SANDAG
servicebureau

Date: November 6, 2019

Appendix D
Existing Traffic Counts

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB Ramps & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-001
Date: 10/24/2019

Total

NS/EW Streets:	I-5 SB Ramps				I-5 SB Ramps				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1.5	0.5	1	0	0	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	23	0	27	0	0	103	52	0	116	75	0	0	396
7:15 AM	0	0	0	0	28	0	20	0	0	111	67	0	122	92	0	0	440
7:30 AM	0	0	0	0	14	0	12	0	0	119	58	0	129	129	0	0	461
7:45 AM	0	0	0	0	20	1	24	0	0	164	49	0	137	121	0	0	516
8:00 AM	0	0	0	0	27	2	18	0	0	137	53	0	129	122	0	1	489
8:15 AM	0	0	0	0	30	0	19	0	0	121	58	0	117	129	0	0	474
8:30 AM	0	0	0	0	24	1	25	0	0	115	54	0	123	143	0	0	485
8:45 AM	0	0	0	0	23	1	27	0	0	140	53	0	95	124	0	0	463
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	189	5	172	0	0	1010	444	0	968	935	0	1	3724
APPROACH %'s :					51.64%	1.37%	46.99%	0.00%	0.00%	69.46%	30.54%	0.00%	50.84%	49.11%	0.00%	0.05%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	101	4	86	0	0	537	214	0	506	515	0	1	1964
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.842	0.500	0.860	0.000	0.000	0.819	0.922	0.000	0.923	0.900	0.000	0.250	0.952
						0.955				0.881				0.961			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1.5	0.5	1	0	0	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	69	1	39	0	0	161	48	0	73	153	0	1	545
4:15 PM	0	0	0	0	69	1	32	0	0	161	43	0	82	157	0	0	545
4:30 PM	0	0	0	0	74	1	35	0	0	154	48	0	75	150	0	2	539
4:45 PM	0	0	0	0	75	1	32	0	0	177	39	0	69	133	0	2	528
5:00 PM	0	0	0	0	85	2	35	0	0	145	39	0	90	130	0	2	528
5:15 PM	0	0	0	0	90	0	23	0	0	157	36	0	78	139	0	2	525
5:30 PM	0	0	0	0	87	0	26	0	0	126	52	0	69	160	0	2	522
5:45 PM	0	0	0	0	78	2	28	0	0	134	44	0	104	179	0	1	570
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	627	8	250	0	0	1215	349	0	640	1201	0	12	4302
APPROACH %'s :					70.85%	0.90%	28.25%	0.00%	0.00%	77.69%	22.31%	0.00%	34.54%	64.81%	0.00%	0.65%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	287	4	138	0	0	653	178	0	299	593	0	5	2157
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.957	1.000	0.885	0.000	0.000	0.922	0.927	0.000	0.912	0.944	0.000	0.625	0.989
						0.975				0.962				0.938			

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB Ramps & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-001
Date: 10/24/2019

Bikes

NS/EW Streets:	I-5 SB Ramps				I-5 SB Ramps				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1.5	0.5	1	0	0	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	3
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	1	0	0	9	0	0	0	5	0	0	15
APPROACH %'s :					0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	1	0	0	3	0	0	0	4	0	0	8
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.750	0.000	0.000	0.000	0.500	0.000	0.000	0.667
							0.250				0.750				0.500		

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1.5	0.5	1	0	0	2	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
5:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	1	0	0	9	0	0	0	12	0	0	22
APPROACH %'s :					0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	7	0	0	0	5	0	0	12
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.438	0.000	0.000	0.000	0.417	0.000	0.000	0.600
											0.438				0.417		

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 SB Ramps & Leucadia Blvd **Project ID:** 19-04410-001
City: Encinitas **Date:** 10/24/2019

Pedestrians (Crosswalks)

NS/EW Streets:	I-5 SB Ramps		I-5 SB Ramps		Leucadia Blvd		Leucadia Blvd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	3	0	0	2	0	0	0	0	5
7:15 AM	2	0	1	0	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	1	0	0	0	0	0	1
8:15 AM	0	0	0	1	0	0	0	0	1
8:30 AM	0	0	0	2	0	0	0	0	2
8:45 AM	0	0	1	1	0	0	0	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	5	0	3	6	0	0	0	0	14
APPROACH %'s :	100.00%	0.00%	33.33%	66.67%					
PEAK HR :	07:45 AM - 08:45 AM								TOTAL
PEAK HR VOL :	0	0	1	3	0	0	0	0	4
PEAK HR FACTOR :			0.250	0.375					0.500
			0.500						

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	1	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	2	0	0	2	0	0	0	0	4
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	2	1	0	3	0	0	0	0	6
APPROACH %'s :	66.67%	33.33%	0.00%	100.00%					
PEAK HR :	04:00 PM - 05:00 PM								TOTAL
PEAK HR VOL :	0	1	0	0	0	0	0	0	1
PEAK HR FACTOR :		0.250							0.250
	0.250								

Prepared by National Data & Surveying Services

I-5 SB Ramps & Leucadia Blvd

Peak Hour Turning Movement Count

ID: 19-04410-001
City: Encinitas

Day: Thursday
Date: 10/24/2019

	PEAK HOURS	COUNT PERIODS
AM	07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

I-5 SB Ramps — SOUTHBOUND

	Right	Through	Left	U-Turn	Departing
AM	86	4	101	0	0
NOON	0	0	0	0	0
PM	138	4	287	0	0
Lanes	1	0.5	1.5	0	

Leucadia Blvd — EASTBOUND

	AM	NOON	PM	Lanes
Departing	601	0	731	
U-Turn	0	0	0	0
Left	0	0	0	0
Through	537	0	653	2
Right	214	0	178	1

Leucadia Blvd — WESTBOUND

	Lanes	PM	NOON	AM
Right	0	0	0	0
Through	2	593	0	515
Left	2	299	0	506
U-Turn	0	5	0	1
Departing		945	0	639

I-5 SB Ramps — NORTHBOUND

	Departing	U-Turn	Left	Through	Right
Lanes		0	0	0	0
PM	481	0	0	0	0
NOON	0	0	0	0	0
AM	724	0	0	0	0

CONTROL

Signalized

	AM	NOON	PM
TEV	1964	0	2157
PHF	0.95		0.99

Total Vehicles (AM)

Approach	Right	Through	Left	U-Turn
Southbound	86	4	101	
Eastbound	214	537	0	
Westbound	0	515	506	
Northbound	0	0	0	

Total Vehicles (Noon)

All movements: N/A

Total Vehicles (PM)

Approach	Right	Through	Left
Southbound	138	4	287
Eastbound	178	653	0
Westbound	0	593	299
Northbound	0	0	0

Bikes (AM)

Approach	Right	Through	Left
Southbound	1	0	0
Eastbound	0	3	0
Westbound	0	4	0
Northbound	0	0	0

Bikes (NOON)

All movements: N/A

Bikes (PM)

Approach	Right	Through	Left
Southbound	0	0	0
Eastbound	0	7	0
Westbound	0	5	0
Northbound	0	0	0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg (westward)	0	0	0
North leg (eastward)	0	0	1
East leg (southward)	0	0	0
East leg (northward)	0	0	0
South leg (eastward)	0	0	1
South leg (westward)	3	0	0
West leg (southward)	0	0	0
West leg (northward)	0	0	0
NW corner diagonal	0	0	0
NE corner diagonal	0	0	0
SW corner diagonal	0	0	0
SE corner diagonal	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 NB Ramps & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-002
Date: 10/24/2019

Total

NS/EW Streets:	I-5 NB Ramps				I-5 NB Ramps				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	2	0	0	0	0	0	1	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	26	6	72	0	0	0	0	0	35	102	0	0	0	206	63	0	510
7:15 AM	19	2	87	0	0	0	0	0	33	93	0	0	0	195	65	0	494
7:30 AM	32	8	58	0	0	0	0	0	55	91	0	1	0	216	55	0	516
7:45 AM	28	8	56	0	0	0	0	0	41	149	0	0	0	239	86	0	607
8:00 AM	35	5	86	0	0	0	0	0	38	127	0	0	0	205	62	0	558
8:15 AM	34	9	60	0	0	0	0	0	41	95	0	0	0	225	89	0	553
8:30 AM	35	9	80	0	0	0	0	0	48	107	0	0	0	207	74	0	560
8:45 AM	32	8	80	0	0	0	0	0	49	119	0	1	0	196	79	0	564
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	241	55	579	0	0	0	0	0	340	883	0	2	0	1689	573	0	4362
APPROACH %'s :	27.54%	6.29%	66.17%	0.00%					27.76%	72.08%	0.00%	0.16%	0.00%	74.67%	25.33%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	132	31	282	0	0	0	0	0	168	478	0	0	0	876	311	0	2278
PEAK HR FACTOR :	0.943	0.861	0.820	0.000	0.000	0.000	0.000	0.000	0.875	0.802	0.000	0.000	0.000	0.916	0.874	0.000	0.938
	0.883								0.850				0.913				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	2	0	0	0	0	0	1	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	47	13	94	0	0	0	0	0	47	187	0	0	0	176	100	0	664
4:15 PM	33	14	91	0	0	0	0	0	38	181	0	0	0	181	97	0	635
4:30 PM	36	12	95	0	0	0	0	0	57	196	0	0	0	153	97	0	646
4:45 PM	29	18	88	0	0	0	0	0	37	180	0	0	0	182	100	0	634
5:00 PM	48	20	83	0	0	0	0	0	40	233	0	0	0	181	116	0	721
5:15 PM	45	26	114	0	0	0	0	0	34	190	0	0	0	166	103	0	678
5:30 PM	54	34	121	0	0	0	0	0	35	181	0	2	0	204	78	0	709
5:45 PM	47	19	133	0	0	0	0	0	23	168	0	0	0	208	91	0	689
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	339	156	819	0	0	0	0	0	311	1516	0	2	0	1451	782	0	5376
APPROACH %'s :	25.80%	11.87%	62.33%	0.00%					17.00%	82.89%	0.00%	0.11%	0.00%	64.98%	35.02%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	194	99	451	0	0	0	0	0	132	772	0	2	0	759	388	0	2797
PEAK HR FACTOR :	0.898	0.728	0.848	0.000	0.000	0.000	0.000	0.000	0.825	0.828	0.000	0.250	0.000	0.912	0.836	0.000	0.970
	0.890								0.830				0.959				

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 NB Ramps & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-002
Date: 10/24/2019

Bikes

NS/EW Streets:	I-5 NB Ramps				I-5 NB Ramps				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	2	0	0	0	0	0	1	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	1	0	4
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	9	0	0	0	6	1	0	16
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	85.71%	14.29%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	4	0	0	0	4	1	0	9
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.333	0.250	0.000	0.563
										0.500				0.417			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	2	0	0	0	0	0	1	2	0	0	0	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	4
4:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	10	0	0	0	10	0	0	20
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.750
										0.500				0.500			

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-5 NB Ramps & Leucadia Blvd **Project ID:** 19-04410-002
City: Encinitas **Date:** 10/24/2019

Pedestrians (Crosswalks)

NS/EW Streets:	I-5 NB Ramps		I-5 NB Ramps		Leucadia Blvd		Leucadia Blvd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	1	0	0	0	0	0	0	0	1
7:15 AM	2	0	1	0	0	0	0	0	3
7:30 AM	0	1	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	1	1	0	0	0	0	2
8:15 AM	0	0	0	2	0	0	0	0	2
8:30 AM	0	0	0	1	0	0	0	0	1
8:45 AM	0	0	1	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	3	1	3	4	0	0	0	0	11
APPROACH %'s :	75.00%	25.00%	42.86%	57.14%					
PEAK HR :	**07:45 AM - 08:45 AM**								TOTAL
PEAK HR VOL :	0	0	1	4	0	0	0	0	5
PEAK HR FACTOR :			0.250	0.500					0.625
			0.625						

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	1	1	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	1	0	0	0	0	1
5:15 PM	0	2	0	0	0	0	0	0	2
5:30 PM	2	2	0	2	0	0	0	0	6
5:45 PM	1	0	0	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	4	5	0	3	0	0	0	0	12
APPROACH %'s :	44.44%	55.56%	0.00%	100.00%					
PEAK HR :	**05:00 PM - 06:00 PM**								TOTAL
PEAK HR VOL :	3	4	0	3	0	0	0	0	10
PEAK HR FACTOR :	0.375	0.500		0.375					0.417
	0.438		0.375						

Prepared by National Data & Surveying Services

I-5 NB Ramps & Leucadia Blvd

Peak Hour Turning Movement Count

ID: 19-04410-002
City: Encinitas

Day: Thursday
Date: 10/24/2019

PEAK HOURS	COUNT PERIODS
07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

I-5 NB Ramps — SOUTHBOUND

AM	0	0	0	0	510	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	619	PM

Leucadia Blvd — EASTBOUND

AM	NOON	PM		
1008	0	955	⇦	
0	0	2	↶	0
168	0	132	↱	1
478	0	772	→	2
0	0	0	↷	0
AM	NOON	PM		

Leucadia Blvd — WESTBOUND

PM	NOON	AM		
388	0	311	↷	0
759	0	876	←	3
0	0	0	↶	0
0	0	0	↰	0
1223	0	760	⇨	
PM	NOON	AM		

CONTROL

Signalized

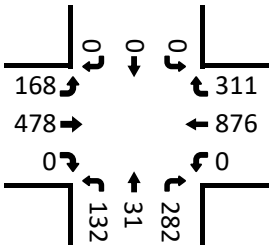
TEV	2278 AM	0 NOON	2797 PM
PHF	0.94		0.97

I-5 NB Ramps — NORTHBOUND

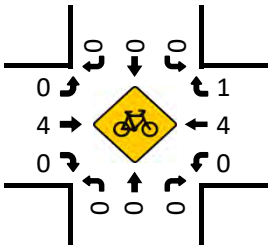
PM	0	0	194	99	451	PM
NOON	0	0	0	0	0	NOON
AM	0	0	132	31	282	AM

↶	0	0	0	0
↰	0	1.5	0.5	2
↑	0	194	99	451
↱	0	132	31	282

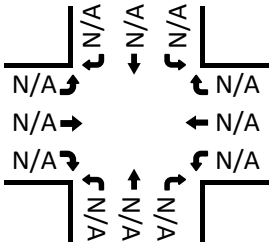
Total Vehicles (AM)



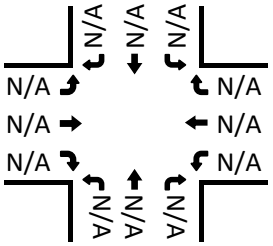
Bikes (AM)



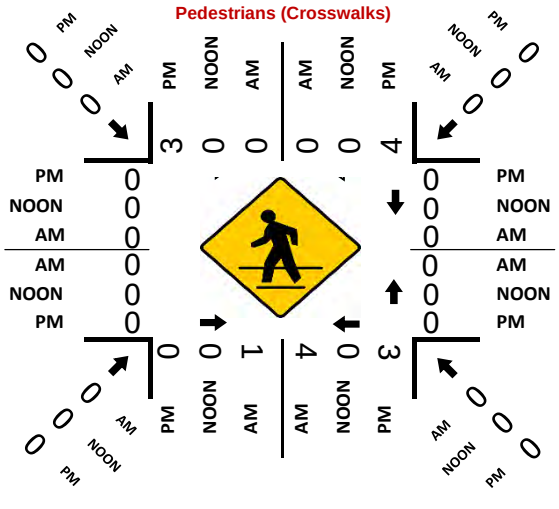
Total Vehicles (Noon)



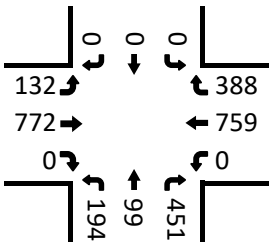
Bikes (NOON)



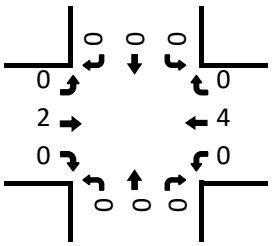
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Urania Ave/Clark Ave & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-003
Date: 10/24/2019

Total

NS/EW Streets:	Urania Ave/Clark Ave				Urania Ave/Clark Ave				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	2	0	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	8	0	7	0	21	0	24	0	3	163	7	4	3	236	4	2	482
7:15 AM	5	0	10	0	25	0	36	0	5	173	0	1	0	210	6	3	474
7:30 AM	3	0	3	0	28	0	34	0	4	147	1	1	5	254	6	3	489
7:45 AM	14	1	8	0	26	2	27	0	2	201	0	1	6	274	5	1	568
8:00 AM	8	1	6	0	25	1	28	0	5	209	3	0	7	248	6	3	550
8:15 AM	9	0	4	0	28	1	25	0	4	145	3	2	0	265	2	5	493
8:30 AM	10	0	7	0	26	0	22	0	3	183	3	1	2	240	8	3	508
8:45 AM	7	0	3	0	29	0	20	0	4	190	5	1	2	258	5	3	527
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	64	2	48	0	208	4	216	0	30	1411	22	11	25	1985	42	23	4091
APPROACH %'s :	56.14%	1.75%	42.11%	0.00%	48.60%	0.93%	50.47%	0.00%	2.04%	95.73%	1.49%	0.75%	1.20%	95.66%	2.02%	1.11%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	41	2	25	0	105	4	102	0	14	738	9	4	15	1027	21	12	2119
PEAK HR FACTOR :	0.732	0.500	0.781	0.000	0.938	0.500	0.911	0.000	0.700	0.883	0.750	0.500	0.536	0.937	0.656	0.600	0.933
	0.739				0.959				0.881				0.940				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	2	0	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	0	2	0	19	1	12	0	4	276	3	1	3	268	11	4	608
4:15 PM	10	1	6	0	7	1	19	0	6	259	9	1	1	251	5	6	582
4:30 PM	6	1	6	0	15	0	14	0	5	275	8	5	5	232	10	9	591
4:45 PM	8	0	3	0	18	0	17	0	7	261	4	4	5	257	12	7	603
5:00 PM	1	2	3	0	11	0	11	0	7	287	8	3	5	287	7	12	644
5:15 PM	3	0	6	0	17	0	7	0	3	301	3	3	6	260	8	8	625
5:30 PM	6	0	2	0	10	0	15	0	5	287	6	4	8	263	8	2	616
5:45 PM	10	0	5	0	15	0	12	0	3	288	7	1	6	282	6	8	643
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	48	4	33	0	112	2	107	0	40	2234	48	22	39	2100	67	56	4912
APPROACH %'s :	56.47%	4.71%	38.82%	0.00%	50.68%	0.90%	48.42%	0.00%	1.71%	95.31%	2.05%	0.94%	1.72%	92.84%	2.96%	2.48%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	20	2	16	0	53	0	45	0	18	1163	24	11	25	1092	29	30	2528
PEAK HR FACTOR :	0.500	0.250	0.667	0.000	0.779	0.000	0.750	0.000	0.643	0.966	0.750	0.688	0.781	0.951	0.906	0.625	0.981
	0.633				0.907				0.981				0.945				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Urania Ave/Clark Ave & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-003
Date: 10/24/2019

Bikes

NS/EW Streets:	Urania Ave/Clark Ave				Urania Ave/Clark Ave				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	2	0	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
8:30 AM	0	0	0	0	0	0	1	0	0	2	0	0	0	1	0	0	4
8:45 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	0	1	0	0	8	1	0	0	7	1	0	19
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	88.89%	11.11%	0.00%	0.00%	87.50%	12.50%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	1	0	0	4	0	0	0	5	0	0	10
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.417	0.000	0.000	0.625
					0.250				0.500				0.417				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	2	0	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	1	1	0	0	4
4:15 PM	0	0	0	0	0	0	1	0	1	2	0	0	0	1	0	0	5
4:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:00 PM	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	4
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	1	2	0	1	9	0	0	1	11	0	0	26
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	33.33%	66.67%	0.00%	10.00%	90.00%	0.00%	0.00%	8.33%	91.67%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	1	1	0	0	2	0	0	0	4	0	0	9
PEAK HR FACTOR :	0.00	0.250	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.563
		0.250				0.500				0.500				0.500			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Urania Ave/Clark Ave & Leucadia Blvd **Project ID:** 19-04410-003
City: Encinitas **Date:** 10/24/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Urania Ave/Clark Ave		Urania Ave/Clark Ave		Leucadia Blvd		Leucadia Blvd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	1	0	0	0	0	0	0	0	1
7:15 AM	1	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	2	0	2
7:45 AM	0	0	0	2	0	0	1	0	3
8:00 AM	0	0	0	0	0	0	1	0	1
8:15 AM	1	0	0	1	0	0	0	1	3
8:30 AM	0	0	0	1	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	3	0	0	4	0	0	4	1	12
APPROACH %'s :	100.00%	0.00%	0.00%	100.00%			80.00%	20.00%	
PEAK HR :	**07:45 AM - 08:45 AM**								TOTAL
PEAK HR VOL :	1	0	0	4	0	0	2	1	8
PEAK HR FACTOR :	0.250			0.500			0.500	0.250	0.667
	0.250		0.500				0.750		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	1	0	0	0	0	1	2
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	2	0	0	1	0	3
5:15 PM	0	1	1	1	0	0	0	0	3
5:30 PM	0	0	1	0	0	0	0	0	1
5:45 PM	1	0	0	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	1	3	3	0	0	1	1	10
APPROACH %'s :	50.00%	50.00%	50.00%	50.00%			50.00%	50.00%	
PEAK HR :	**05:00 PM - 06:00 PM**								TOTAL
PEAK HR VOL :	1	1	2	3	0	0	1	0	8
PEAK HR FACTOR :	0.250	0.250	0.500	0.375			0.250		0.667
	0.500		0.625				0.250		

Prepared by National Data & Surveying Services

Urania Ave/Clark Ave & Leucadia Blvd

Peak Hour Turning Movement Count

ID: 19-04410-003
City: Encinitas

Day: Thursday
Date: 10/24/2019

PEAK HOURS	COUNT PERIODS
07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

Urania Ave/Clark Ave — SOUTHBOUND

AM	102	4	105	0	37	AM
NOON	0	0	0	0	0	NOON
PM	45	0	53	0	49	PM

EASTBOUND (Leucadia Blvd)

AM	NOON	PM	
1174	0	1168	
4	0	11	0
14	0	18	1
738	0	1163	2
9	0	24	0

WESTBOUND (Leucadia Blvd)

PM	NOON	AM	
29	0	21	0
1092	0	1027	3
25	0	15	1
30	0	12	0
1262	0	880	

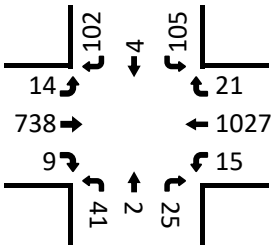
NORTHBOUND — Urania Ave/Clark Ave

PM	49	0	20	2	16	PM
NOON	0	0	0	0	0	NOON
AM	28	0	41	2	25	AM

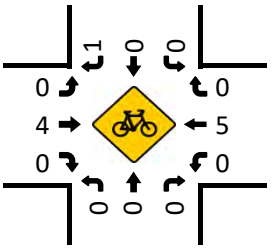
	0	1	1	0

CONTROL			
Signalized			
TEV	2119	0	2528
	AM	NOON	PM
PHF	0.93		0.98

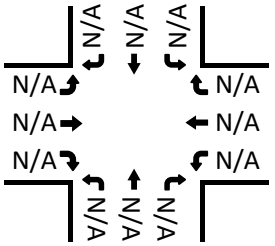
Total Vehicles (AM)



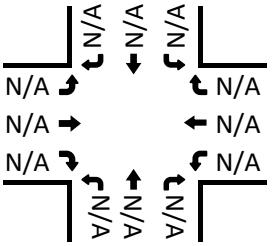
Bikes (AM)



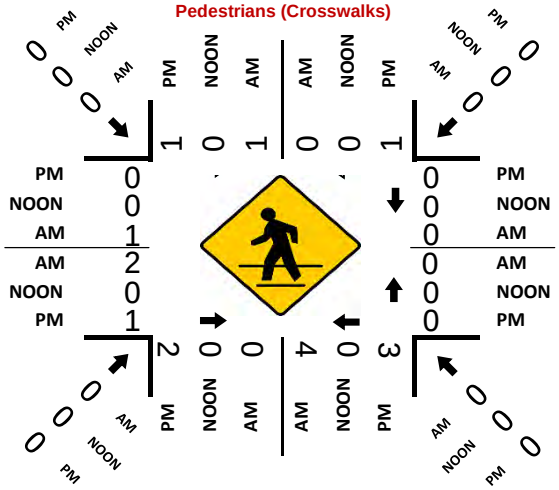
Total Vehicles (Noon)



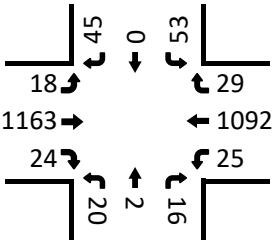
Bikes (NOON)



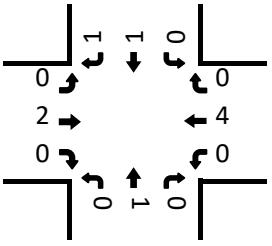
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Saxony Rd & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-004
Date: 10/24/2019

Total

NS/EW Streets:	Saxony Rd				Saxony Rd				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	16	2	13	0	11	27	2	0	2	169	31	0	63	218	2	0	556
7:15 AM	13	1	18	0	4	43	7	0	3	174	45	2	74	211	1	0	596
7:30 AM	17	6	17	0	3	81	5	0	4	142	46	0	81	228	6	0	636
7:45 AM	22	4	23	0	11	69	8	0	7	171	51	2	83	265	3	0	719
8:00 AM	29	12	28	0	7	68	10	0	2	186	53	1	53	221	6	1	677
8:15 AM	17	6	29	0	8	60	13	0	3	159	48	4	69	266	5	1	688
8:30 AM	22	14	30	0	10	81	7	0	2	169	26	0	80	214	12	0	667
8:45 AM	24	15	28	0	15	55	3	0	6	185	39	3	64	232	7	0	676
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	160	60	186	0	69	484	55	0	29	1355	339	12	567	1855	42	2	5215
APPROACH %'s :	39.41%	14.78%	45.81%	0.00%	11.35%	79.61%	9.05%	0.00%	1.67%	78.10%	19.54%	0.69%	22.99%	75.22%	1.70%	0.08%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	90	36	110	0	36	278	38	0	14	685	178	7	285	966	26	2	2751
PEAK HR FACTOR :	0.776	0.643	0.917	0.000	0.818	0.858	0.731	0.000	0.500	0.921	0.840	0.438	0.858	0.908	0.542	0.500	0.957
	0.855				0.898				0.913				0.911				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	30	24	51	0	11	14	7	0	4	273	28	4	29	228	11	3	717
4:15 PM	27	20	42	0	5	18	5	0	3	248	29	1	59	253	9	2	721
4:30 PM	31	24	55	0	5	12	5	0	16	249	36	1	30	195	11	3	673
4:45 PM	32	24	57	0	6	17	9	0	2	261	33	1	46	245	14	1	748
5:00 PM	38	37	60	0	4	17	5	0	7	239	32	2	33	252	10	2	738
5:15 PM	36	35	46	0	9	9	8	0	15	283	25	0	41	248	9	2	766
5:30 PM	35	28	52	0	8	20	10	0	10	289	25	1	29	211	6	2	726
5:45 PM	27	22	29	0	5	13	9	0	9	303	15	1	36	280	6	0	755
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	256	214	392	0	53	120	58	0	66	2145	223	11	303	1912	76	15	5844
APPROACH %'s :	29.70%	24.83%	45.48%	0.00%	22.94%	51.95%	25.11%	0.00%	2.70%	87.73%	9.12%	0.45%	13.14%	82.91%	3.30%	0.65%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	136	122	187	0	26	59	32	0	41	1114	97	4	139	991	31	6	2985
PEAK HR FACTOR :	0.895	0.824	0.779	0.000	0.722	0.738	0.800	0.000	0.683	0.919	0.758	0.500	0.848	0.885	0.775	0.750	0.974
	0.824				0.770				0.957				0.906				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Saxony Rd & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-004
Date: 10/24/2019

Bikes

NS/EW Streets:	Saxony Rd				Saxony Rd				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
8:30 AM	0	0	0	0	0	1	0	0	0	1	1	0	0	1	1	0	5
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	0	0	0	1	0	0	0	6	1	0	0	5	1	0	15
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	85.71%	14.29%	0.00%	0.00%	83.33%	16.67%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	1	0	0	0	0	1	0	0	0	3	1	0	0	3	1	0	10
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.750	0.250	0.000	0.000	0.750	0.250	0.000	0.500
	0.250				0.250				0.500				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	0	0	0	0	0	0	1	2	1	0	0	4	0	0	9
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%					25.00%	50.00%	25.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3
PEAK HR FACTOR :	0.25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.750
	0.250												0.500				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Saxony Rd & Leucadia Blvd
City: Encinitas
Project ID: 19-04410-004
Date: 10/24/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Saxony Rd		Saxony Rd		Leucadia Blvd		Leucadia Blvd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	1	0	1	0	0	0	1	0	3
7:15 AM	2	0	0	0	0	0	0	0	2
7:30 AM	0	0	1	1	0	0	0	0	2
7:45 AM	1	0	1	1	0	0	0	0	3
8:00 AM	0	0	0	1	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	1	0	1	0	2
8:45 AM	0	0	0	0	0	2	0	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	4	0	3	3	1	2	2	0	15
APPROACH %'s :	100.00%	0.00%	50.00%	50.00%	33.33%	66.67%	100.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM								TOTAL
PEAK HR VOL :	1	0	1	2	1	0	1	0	6
PEAK HR FACTOR :	0.250		0.250	0.500	0.250		0.250		0.500
	0.250		0.375		0.250		0.250		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	1	0	0	0	0	1
5:15 PM	0	1	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	1	0	0	0	1
5:45 PM	0	0	1	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	1	1	1	1	0	0	0	4
APPROACH %'s :	0.00%	100.00%	50.00%	50.00%	100.00%	0.00%			
PEAK HR :	05:00 PM - 06:00 PM								TOTAL
PEAK HR VOL :	0	1	1	1	1	0	0	0	4
PEAK HR FACTOR :		0.250	0.250	0.250	0.250				1.000
	0.250		0.500		0.250				

Prepared by National Data & Surveying Services

Saxony Rd & Leucadia Blvd

Peak Hour Turning Movement Count

ID: 19-04410-004
City: Encinitas

Day: Thursday
Date: 10/24/2019

PEAK HOURS	COUNT PERIODS
07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

SOUTHBOUND (Saxony Rd)

AM	38	278	36	0	76	AM
NOON	0	0	0	0	0	NOON
PM	32	59	26	0	194	PM

EASTBOUND (Leucadia Blvd)

AM	NOON	PM	
1101	0	1163	
7	0	4	0
14	0	41	1
685	0	1114	2
178	0	97	0

WESTBOUND (Leucadia Blvd)

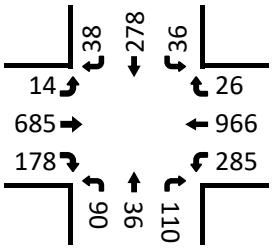
PM	NOON	AM	
31	0	26	0
991	0	966	2
139	0	285	1
6	0	2	0
1333	0	833	

NORTHBOUND (Saxony Rd)

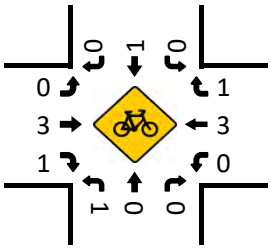
PM	295	0	136	122	187	PM
NOON	0	0	0	0	0	NOON
AM	741	0	90	36	110	AM

CONTROL			
Signalized			
TEV	2751 AM	0 NOON	2985 PM
PHF	0.96		0.97

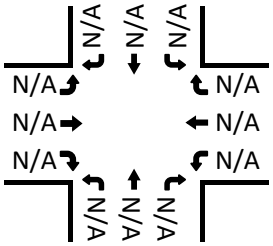
Total Vehicles (AM)



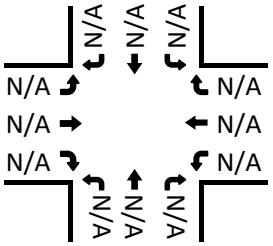
Bikes (AM)



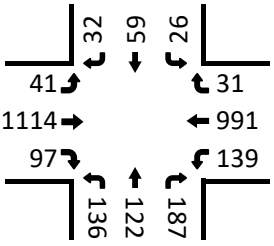
Total Vehicles (Noon)



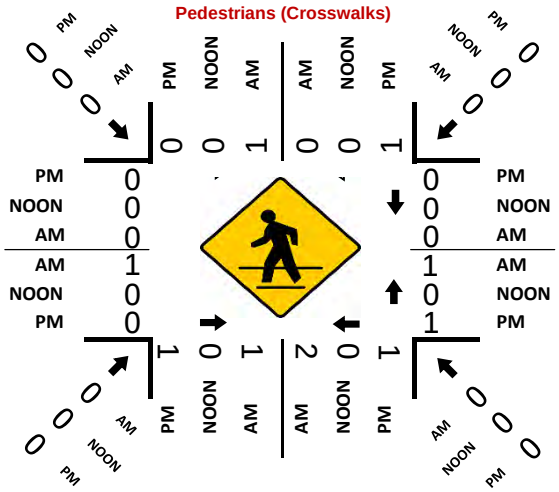
Bikes (NOON)



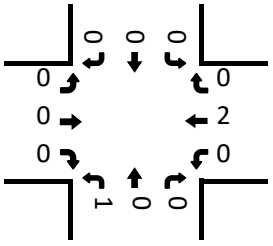
Total Vehicles (PM)



Pedestrians (Crosswalks)



Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Quail Gardens Dr & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-005
Date: 10/24/2019

Total

NS/EW Streets:	Quail Gardens Dr				Quail Gardens Dr				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	13	2	50	0	9	10	6	0	6	171	19	0	82	284	5	0	657
7:15 AM	11	3	55	0	5	24	5	0	4	162	23	0	115	256	6	1	670
7:30 AM	23	9	60	0	10	16	4	0	5	123	26	0	125	282	13	0	696
7:45 AM	24	8	53	0	11	26	2	0	3	186	37	0	98	296	8	0	752
8:00 AM	24	5	59	0	16	23	3	0	5	189	27	0	77	245	9	0	682
8:15 AM	20	11	42	0	16	24	5	0	5	165	24	0	89	295	9	0	705
8:30 AM	20	9	39	0	16	18	2	0	7	191	27	0	68	280	15	1	693
8:45 AM	13	11	27	0	14	15	6	0	6	187	30	0	70	270	10	0	659
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	148	58	385	0	97	156	33	0	41	1374	213	0	724	2208	75	2	5514
APPROACH %'s :	25.04%	9.81%	65.14%	0.00%	33.92%	54.55%	11.54%	0.00%	2.52%	84.40%	13.08%	0.00%	24.06%	73.38%	2.49%	0.07%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	91	33	214	0	53	89	14	0	18	663	114	0	389	1118	39	0	2835
PEAK HR FACTOR :	0.948	0.750	0.892	0.000	0.828	0.856	0.700	0.000	0.900	0.877	0.770	0.000	0.778	0.944	0.750	0.000	0.942
	0.918				0.867				0.879				0.920				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	40	13	77	0	21	7	11	0	10	301	12	0	47	260	18	1	818
4:15 PM	26	9	87	0	19	12	14	0	5	276	18	0	41	253	19	2	781
4:30 PM	24	15	78	0	16	7	15	0	4	286	23	0	43	235	16	0	762
4:45 PM	15	12	87	1	14	16	12	0	7	305	18	0	55	255	13	1	811
5:00 PM	28	25	89	0	19	11	9	0	5	282	26	0	37	251	16	0	798
5:15 PM	24	14	77	0	25	13	8	0	3	317	24	0	49	289	17	0	860
5:30 PM	22	18	72	1	20	12	6	0	2	306	14	0	47	257	7	0	784
5:45 PM	26	7	72	0	18	4	9	0	8	272	25	0	35	240	13	0	729
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	205	113	639	2	152	82	84	0	44	2345	160	0	354	2040	119	4	6343
APPROACH %'s :	21.38%	11.78%	66.63%	0.21%	47.80%	25.79%	26.42%	0.00%	1.73%	92.00%	6.28%	0.00%	14.06%	81.05%	4.73%	0.16%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	89	69	325	2	78	52	35	0	17	1210	82	0	188	1052	53	1	3253
PEAK HR FACTOR :	0.795	0.690	0.913	0.500	0.780	0.813	0.729	0.000	0.607	0.954	0.788	0.000	0.855	0.910	0.779	0.250	0.946
	0.854				0.897				0.951				0.911				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Quail Gardens Dr & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-005
Date: 10/24/2019

Bikes

NS/EW Streets:	Quail Gardens Dr				Quail Gardens Dr				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
8:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	1	0	0	2	0	0	0	4	0	0	0	4	0	0	13
APPROACH %'s :	0.00%	66.67%	33.33%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	2	0	0	0	0	0	0	0	2	0	0	0	2	0	0	6
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.750
		0.250								0.500				0.500			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	1	1	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:15 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	4	0	0	1	0	0	0	1	0	0	0	4	0	0	11
APPROACH %'s :	20.00%	0.00%	80.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	5
PEAK HR FACTOR :	0.00	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.625
		0.250												0.375			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Quail Gardens Dr & Leucadia Blvd **Project ID:** 19-04410-005
City: Encinitas **Date:** 10/24/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Quail Gardens Dr		Quail Gardens Dr		Leucadia Blvd		Leucadia Blvd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	1	0	1	2	0	1	5
7:15 AM	1	0	1	0	0	2	0	2	6
7:30 AM	0	0	1	0	0	1	1	0	3
7:45 AM	0	0	1	1	1	0	0	1	4
8:00 AM	0	0	0	0	0	1	0	0	1
8:15 AM	0	0	0	0	1	0	0	1	2
8:30 AM	0	0	1	1	0	0	0	0	2
8:45 AM	0	0	1	0	0	4	0	1	6
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	0	6	2	3	10	1	6	29
APPROACH %'s :	100.00%	0.00%	75.00%	25.00%	23.08%	76.92%	14.29%	85.71%	
PEAK HR :	**07:30 AM - 08:30 AM**								TOTAL
PEAK HR VOL :	0	0	2	1	2	2	1	2	10
PEAK HR FACTOR :			0.500	0.250	0.500	0.500	0.250	0.500	0.625
			0.375		1.000		0.750		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	1	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	0	1
4:45 PM	0	0	0	0	0	0	0	2	2
5:00 PM	0	0	0	1	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	1	0	1
5:30 PM	0	0	0	0	0	3	0	2	5
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	1	1	0	4	1	4	11
APPROACH %'s :			50.00%	50.00%	0.00%	100.00%	20.00%	80.00%	
PEAK HR :	**04:45 PM - 05:45 PM**								TOTAL
PEAK HR VOL :	0	0	0	1	0	3	1	4	9
PEAK HR FACTOR :				0.250		0.250	0.250	0.500	0.450
			0.250		0.250		0.625		

Prepared by National Data & Surveying Services

Quail Gardens Dr & Leucadia Blvd

Peak Hour Turning Movement Count

ID: 19-04410-005
City: Encinitas

Day: Thursday
Date: 10/24/2019

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Quail Gardens Dr — SOUTHBOUND

AM	14	89	53	0	90	AM
NOON	0	0	0	0	0	NOON
PM	35	52	78	0	139	PM

Leucadia Blvd — EASTBOUND

AM	NOON	PM		
1223	0	1176	⇦	
0	0	0	↶	0
18	0	17	↱	1
663	0	1210	→	2
114	0	82	↳	0
AM	NOON	PM		

Leucadia Blvd — WESTBOUND

PM	NOON	AM		
53	0	39	↰	0
1052	0	1118	←	2
188	0	389	↰	1
1	0	0	↶	0
1614	0	930	⇨	
PM	NOON	AM		

Quail Gardens Dr — NORTHBOUND

PM	324	2	89	69	325	PM
NOON	0	0	0	0	0	NOON
AM	592	0	91	33	214	AM

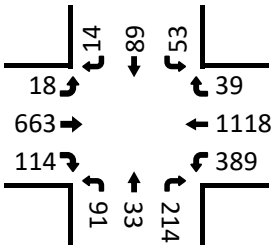
	1	1	1	0
	0	1	1	1

CONTROL

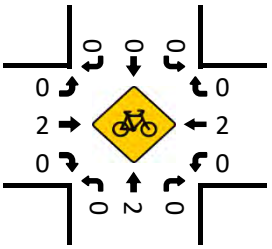
Signalized

TEV	2835 AM	0 NOON	3253 PM
PHF	0.94		0.95

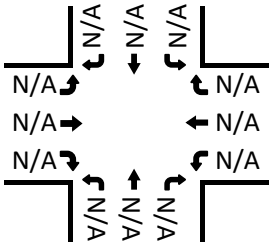
Total Vehicles (AM)



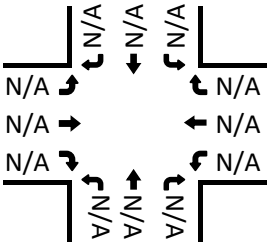
Bikes (AM)



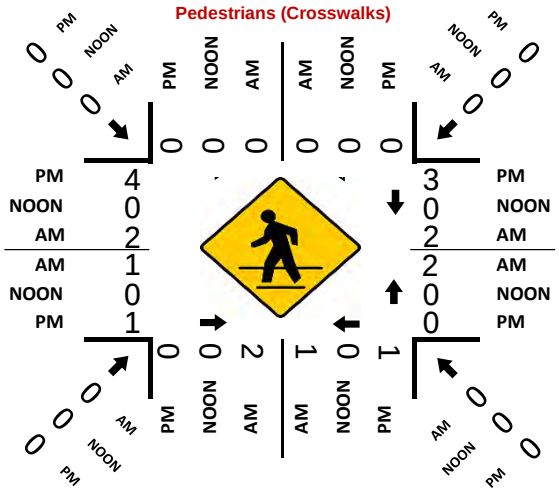
Total Vehicles (NOON)



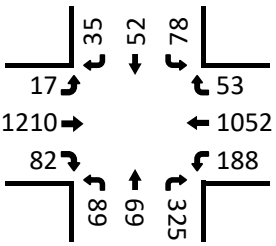
Bikes (NOON)



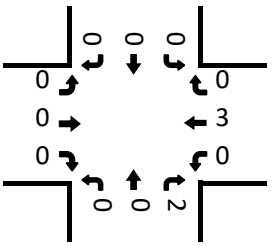
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Garden View Rd & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-006
Date: 10/24/2019

Total

NS/EW Streets:	Garden View Rd				Garden View Rd				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	2	2	0	0	2	2	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	26	5	8	1	1	26	58	0	22	160	25	0	15	259	1	0	607
7:15 AM	34	8	10	1	2	75	85	0	27	189	35	0	51	261	2	0	780
7:30 AM	33	37	6	0	4	99	87	0	22	104	42	0	69	295	1	0	799
7:45 AM	39	27	9	1	2	80	64	0	37	153	56	0	41	306	3	0	818
8:00 AM	52	33	8	3	4	58	73	0	37	164	70	0	23	204	3	0	732
8:15 AM	50	25	11	3	5	45	77	0	40	151	62	0	20	268	9	0	766
8:30 AM	67	31	7	3	5	31	54	0	21	148	56	1	22	251	8	0	705
8:45 AM	42	19	9	2	8	26	60	0	44	141	56	0	20	243	13	0	683
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	343	185	68	14	31	440	558	0	250	1210	402	1	261	2087	40	0	5890
APPROACH %'s :	56.23%	30.33%	11.15%	2.30%	3.01%	42.76%	54.23%	0.00%	13.42%	64.95%	21.58%	0.05%	10.93%	87.40%	1.68%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	158	105	33	5	12	312	309	0	123	610	203	0	184	1066	9	0	3129
PEAK HR FACTOR :	0.760	0.709	0.825	0.417	0.750	0.788	0.888	0.000	0.831	0.807	0.725	0.000	0.667	0.871	0.750	0.000	0.956
	0.784				0.833				0.863				0.862				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	2	2	0	0	2	2	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	72	40	20	3	11	30	59	0	69	229	55	1	8	176	27	0	800
4:15 PM	54	39	14	0	13	28	64	1	63	297	66	0	14	205	28	0	886
4:30 PM	60	42	17	1	10	28	50	0	68	261	44	0	11	195	28	0	815
4:45 PM	85	38	14	1	19	35	58	1	63	249	55	0	16	180	37	0	851
5:00 PM	61	36	15	2	15	23	53	0	74	256	62	0	19	205	25	0	846
5:15 PM	81	56	13	1	15	34	68	0	81	288	59	0	11	192	26	1	926
5:30 PM	50	40	11	3	10	32	54	0	67	270	44	0	12	197	32	2	824
5:45 PM	43	27	17	1	10	31	70	0	74	281	60	0	8	191	30	0	843
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	506	318	121	12	103	241	476	2	559	2131	445	1	99	1541	233	3	6791
APPROACH %'s :	52.87%	33.23%	12.64%	1.25%	12.53%	29.32%	57.91%	0.24%	17.83%	67.95%	14.19%	0.03%	5.28%	82.14%	12.42%	0.16%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	277	170	53	7	59	124	233	1	285	1063	220	0	58	774	120	3	3447
PEAK HR FACTOR :	0.815	0.759	0.883	0.583	0.776	0.886	0.857	0.250	0.880	0.923	0.887	0.000	0.763	0.944	0.811	0.375	0.931
	0.839				0.891				0.916				0.959				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Garden View Rd & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-006
Date: 10/24/2019

Bikes

NS/EW Streets:	Garden View Rd				Garden View Rd				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	2	2	0	0	2	2	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	3
8:30 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	3	0	0	0	0	1	0	1	2	1	0	0	3	0	0	12
APPROACH %'s :	25.00%	75.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	25.00%	50.00%	25.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	0	1	0	0	1	1	0	0	0	0	0	4
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.500
	0.250				0.250				0.500								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	2	2	0	0	2	2	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	1	0	0	0	3	0	0	0	5	0	0	10
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0	0	4
PEAK HR FACTOR :	0.00	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.500
	0.250								0.250				0.500				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Garden View Rd & Leucadia Blvd **Project ID:** 19-04410-006
City: Encinitas **Date:** 10/24/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Garden View Rd		Garden View Rd		Leucadia Blvd		Leucadia Blvd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	1	0	1
7:45 AM	0	0	1	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	1	0	0	0	0	1
8:30 AM	0	1	1	1	0	1	0	1	5
8:45 AM	0	0	1	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	1	3	2	0	1	1	1	9
APPROACH %'s :	0.00%	100.00%	60.00%	40.00%	0.00%	100.00%	50.00%	50.00%	
PEAK HR :	**07:15 AM - 08:15 AM**								TOTAL
PEAK HR VOL :	0	0	1	0	0	0	1	0	2
PEAK HR FACTOR :			0.250				0.250		0.500
			0.250				0.250		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	2	0	2	0	0	0	4
4:15 PM	0	0	0	0	0	0	1	0	1
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	0	0	0	0	1
5:00 PM	0	0	0	1	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	1	1
5:30 PM	0	0	0	1	0	0	0	0	1
5:45 PM	2	0	0	1	0	0	2	0	5
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	2	0	3	3	2	0	3	1	14
APPROACH %'s :	100.00%	0.00%	50.00%	50.00%	100.00%	0.00%	75.00%	25.00%	
PEAK HR :	**04:45 PM - 05:45 PM**								TOTAL
PEAK HR VOL :	0	0	1	2	0	0	0	1	4
PEAK HR FACTOR :			0.250	0.500				0.250	1.000
			0.750				0.250		

Prepared by National Data & Surveying Services

Garden View Rd & Leucadia Blvd

Peak Hour Turning Movement Count

ID: 19-04410-006
City: Encinitas

Day: Thursday
Date: 10/24/2019

PEAK HOURS		COUNT PERIODS
AM	07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Garden View Rd – SOUTHBOUND

	Right	Thru	Left	U-Turn	Departing
AM	309	312	12	0	237
NOON	0	0	0	0	0
PM	233	124	59	1	576
Lanes	0	2	2	0	

Leucadia Blvd – EASTBOUND

	AM	NOON	PM	Lanes
Departing	1533	0	1284	
U-Turn	0	0	0	0
Left	123	0	285	2
Thru	610	0	1063	2
Right	203	0	220	0

Leucadia Blvd – WESTBOUND

	Lanes	PM	NOON	AM
Right	0	120	0	9
Thru	2	774	0	1066
Left	2	58	0	184
U-Turn	0	3	0	0
Departing		1178	0	655

Garden View Rd – NORTHBOUND

	Departing	U-Turn	Left	Thru	Right
Lanes		0	2	2	0
PM	409	7	277	170	53
NOON	0	0	0	0	0
AM	704	5	158	105	33

CONTROL

Signalized

	AM	NOON	PM
TEV	3129	0	3447
PHF	0.96		0.93

Total Vehicles (AM)

Approach	Left	Thru	Right
Southbound	12	312	309
Eastbound	123	610	203
Westbound	184	1066	9
Northbound	158	105	33

Total Vehicles (Noon)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Total Vehicles (PM)

Approach	Left	Thru	Right
Southbound	59	124	233
Eastbound	285	1063	220
Westbound	58	774	120
Northbound	277	170	53

Bikes (AM)

Approach	Left	Thru	Right
Southbound	0	0	1
Eastbound	0	1	1
Westbound	0	0	0
Northbound	0	1	0

Bikes (NOON)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Bikes (PM)

Approach	Left	Thru	Right
Southbound	0	0	0
Eastbound	0	1	0
Westbound	0	2	0
Northbound	0	1	0

Pedestrians (Crosswalks)

Crosswalk	Direction	AM	NOON	PM
North leg	Westward	0	0	0
North leg	Eastward	0	0	0
West leg	Southward	0	0	1
West leg	Northward	1	0	0
East leg	Southward	0	0	0
East leg	Northward	0	0	0
South leg	Eastward	1	0	1
South leg	Westward	0	0	2
NW diagonal		0	0	0
NE diagonal		0	0	0
SW diagonal		0	0	0
SE diagonal		0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: Town Center Pl & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-007
Date: 10/24/2019

Total

NS/EW Streets:	Town Center Pl				Town Center Pl				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	1.5	0.5	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	19	2	16	0	7	1	17	0	5	151	13	0	25	250	33	2	541
7:15 AM	16	3	18	0	13	8	17	0	4	168	21	0	26	269	26	1	590
7:30 AM	11	3	23	0	19	1	19	0	7	110	7	0	37	349	31	1	618
7:45 AM	14	7	17	0	8	8	25	0	9	130	17	1	35	291	27	0	589
8:00 AM	20	2	20	0	16	6	13	0	7	149	23	0	24	217	30	1	528
8:15 AM	26	4	17	0	8	5	13	0	2	131	24	1	31	259	22	2	545
8:30 AM	14	4	25	0	13	7	25	0	6	136	24	0	38	237	45	1	575
8:45 AM	32	7	22	0	19	10	14	0	2	117	30	1	42	234	32	0	562
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	152	32	158	0	103	46	143	0	42	1092	159	3	258	2106	246	8	4548
APPROACH %'s :	44.44%	9.36%	46.20%	0.00%	35.27%	15.75%	48.97%	0.00%	3.24%	84.26%	12.27%	0.23%	9.85%	80.44%	9.40%	0.31%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	60	15	74	0	47	18	78	0	25	559	58	1	123	1159	117	4	2338
PEAK HR FACTOR :	0.789	0.536	0.804	0.000	0.618	0.563	0.780	0.000	0.694	0.832	0.690	0.250	0.831	0.830	0.886	0.500	0.946
	0.980				0.872				0.833				0.839				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	1.5	0.5	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	43	13	51	0	43	14	27	0	12	182	37	3	37	134	43	1	640
4:15 PM	51	12	58	0	39	11	32	0	17	250	53	3	26	146	47	1	746
4:30 PM	60	17	61	0	38	8	29	0	11	208	48	1	58	151	40	2	732
4:45 PM	57	16	58	0	34	14	19	0	12	237	58	1	32	162	32	4	736
5:00 PM	48	16	70	0	41	15	25	0	14	189	53	0	46	168	48	3	736
5:15 PM	54	14	68	0	29	14	21	0	17	233	50	1	41	162	44	2	750
5:30 PM	58	13	66	0	31	21	21	0	14	233	49	7	36	154	50	3	756
5:45 PM	68	9	56	0	46	9	17	0	13	235	42	2	40	147	39	2	725
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	439	110	488	0	301	106	191	0	110	1767	390	18	316	1224	343	18	5821
APPROACH %'s :	42.33%	10.61%	47.06%	0.00%	50.33%	17.73%	31.94%	0.00%	4.81%	77.33%	17.07%	0.79%	16.62%	64.39%	18.04%	0.95%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	217	59	262	0	135	64	86	0	57	892	210	9	155	646	174	12	2978
PEAK HR FACTOR :	0.935	0.922	0.936	0.000	0.823	0.762	0.860	0.000	0.838	0.941	0.905	0.321	0.842	0.961	0.870	0.750	0.985
	0.982				0.880				0.948				0.931				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Town Center Pl & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-007
Date: 10/24/2019

Bikes

NS/EW Streets:	Town Center Pl				Town Center Pl				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	1.5	0.5	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	0	0	0	2	0	0	0	3	1	0	7
APPROACH %'s :					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	75.00%	25.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	0	1	0	0	0	1	1	0	4
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.250	0.000	1.000
						0.250				0.250				0.500			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	1	0	1.5	0.5	1	0	2	2	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	2	0	0	3	4	0	0	9
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	42.86%	57.14%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	0	5
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.500	0.000	0.000	0.417
														0.417			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Town Center Pl & Leucadia Blvd
City: Encinitas
Project ID: 19-04410-007
Date: 10/24/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Town Center Pl		Town Center Pl		Leucadia Blvd		Leucadia Blvd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	1	2	0	0	3
7:15 AM	0	0	0	0	0	0	1	0	1
7:30 AM	0	0	0	0	0	0	1	1	2
7:45 AM	1	0	1	1	0	1	0	0	4
8:00 AM	0	0	0	1	0	0	1	0	2
8:15 AM	0	1	0	1	0	0	2	0	4
8:30 AM	0	0	0	0	1	1	0	2	4
8:45 AM	0	1	2	1	0	0	0	2	6
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	2	3	4	2	4	5	5	26
APPROACH %'s :	33.33%	66.67%	42.86%	57.14%	33.33%	66.67%	50.00%	50.00%	
PEAK HR :	**07:00 AM - 08:00 AM**								TOTAL
PEAK HR VOL :	1	0	1	1	1	3	2	1	10
PEAK HR FACTOR :	0.250		0.250	0.250	0.250	0.375	0.500	0.250	0.625
	0.250		0.250		0.333		0.375		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	1	0	2	0	0	0	1	4
4:15 PM	0	0	2	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	1	1
4:45 PM	2	0	1	0	1	0	0	2	6
5:00 PM	0	1	0	1	2	2	0	0	6
5:15 PM	0	0	0	2	0	0	1	0	3
5:30 PM	0	0	0	0	0	0	1	1	2
5:45 PM	2	0	0	2	0	2	0	0	6
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	4	2	3	7	3	4	2	5	30
APPROACH %'s :	66.67%	33.33%	30.00%	70.00%	42.86%	57.14%	28.57%	71.43%	
PEAK HR :	**04:45 PM - 05:45 PM**								TOTAL
PEAK HR VOL :	2	1	1	3	3	2	2	3	17
PEAK HR FACTOR :	0.250	0.250	0.250	0.375	0.375	0.250	0.500	0.375	0.708
	0.375		0.500		0.313		0.625		

Prepared by National Data & Surveying Services

Town Center Pl & Leucadia Blvd

Peak Hour Turning Movement Count

ID: 19-04410-007
City: Encinitas

Day: Thursday
Date: 10/24/2019

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

SOUTHBOUND — Town Center Pl

AM	78	18	47	0	157	AM
NOON	0	0	0	0	0	NOON
PM	86	64	135	0	290	PM

EASTBOUND — Leucadia Blvd

AM	NOON	PM	
1298	0	958	
1	0	9	0
25	0	57	2
559	0	892	2
58	0	210	1

WESTBOUND — Leucadia Blvd

PM	NOON	AM	
174	0	117	1
646	0	1159	2
155	0	123	2
12	0	4	0
1301	0	684	

NORTHBOUND — Town Center Pl

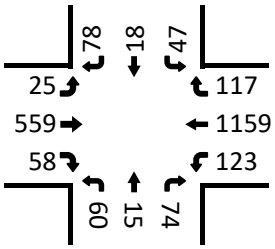
PM	429	0	217	59	262	PM
NOON	0	0	0	0	0	NOON
AM	199	0	60	15	74	AM

	1	0.5	1.5	0
	0	1.5	0.5	1

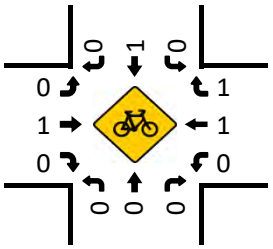
CONTROL: Signalized

TEV	2338 AM	0 NOON	2978 PM
PHF	0.95		0.98

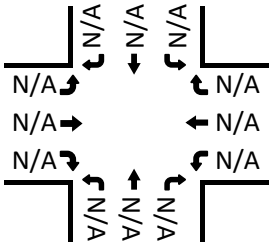
Total Vehicles (AM)



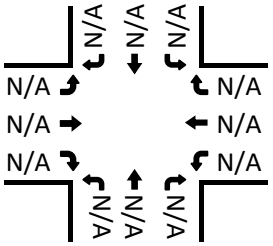
Bikes (AM)



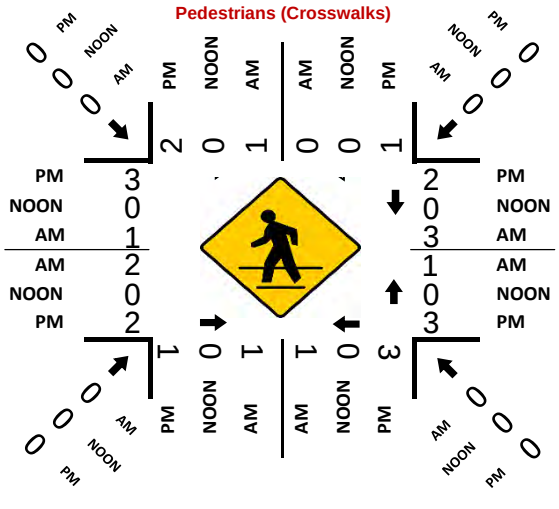
Total Vehicles (Noon)



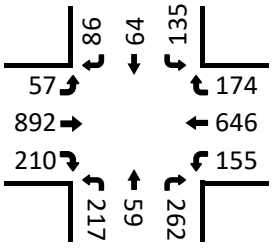
Bikes (NOON)



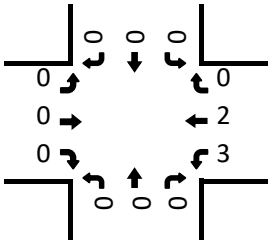
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: N El Camino Real & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-008
Date: 10/24/2019

Total

NS/EW Streets:	N El Camino Real				N El Camino Real				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	4	0	0	2	3	1	0	2	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	13	65	78	0	21	279	23	1	11	107	26	0	271	257	17	0	1169
7:15 AM	18	87	124	2	23	367	34	0	20	165	19	0	227	276	30	0	1392
7:30 AM	12	110	102	1	26	409	39	1	23	121	23	0	252	343	21	0	1483
7:45 AM	17	142	86	0	21	422	39	0	33	86	16	0	223	319	24	0	1428
8:00 AM	17	136	120	0	23	391	26	0	29	99	28	0	285	245	34	0	1433
8:15 AM	20	189	106	0	27	363	28	2	20	116	33	0	223	239	32	0	1398
8:30 AM	34	144	107	0	37	338	38	0	31	83	28	0	260	284	39	0	1423
8:45 AM	30	171	112	0	30	345	37	0	29	110	26	0	230	230	39	0	1389
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	161	1044	835	3	208	2914	264	4	196	887	199	0	1971	2193	236	0	11115
APPROACH %'s :	7.88%	51.10%	40.87%	0.15%	6.14%	85.96%	7.79%	0.12%	15.29%	69.19%	15.52%	0.00%	44.80%	49.84%	5.36%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	66	577	414	1	97	1585	132	3	105	422	100	0	983	1146	111	0	5742
PEAK HR FACTOR :	0.825	0.763	0.863	0.250	0.898	0.939	0.846	0.375	0.795	0.872	0.758	0.000	0.862	0.835	0.816	0.000	0.968
	0.840				0.942				0.928				0.909				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	4	0	0	2	3	1	0	2	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	42	347	260	0	34	265	48	0	49	192	44	1	113	124	30	0	1549
4:15 PM	49	321	241	0	35	199	32	0	54	249	51	0	134	162	33	0	1560
4:30 PM	53	296	232	1	39	235	40	0	53	205	31	1	145	135	28	0	1494
4:45 PM	43	303	220	1	31	173	43	0	39	219	48	1	115	165	35	0	1436
5:00 PM	46	351	223	0	37	166	33	0	50	216	31	0	112	177	31	0	1473
5:15 PM	50	383	263	1	40	230	44	0	45	195	35	2	139	162	33	0	1622
5:30 PM	32	301	238	0	42	237	48	0	68	240	35	1	140	149	32	0	1563
5:45 PM	37	380	244	0	38	216	34	0	61	244	43	3	111	164	44	0	1619
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	352	2682	1921	3	296	1721	322	0	419	1760	318	9	1009	1238	266	0	12316
APPROACH %'s :	7.10%	54.09%	38.75%	0.06%	12.65%	73.58%	13.77%	0.00%	16.72%	70.23%	12.69%	0.36%	40.15%	49.26%	10.58%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	165	1415	968	1	157	849	159	0	224	895	144	6	502	652	140	0	6277
PEAK HR FACTOR :	0.825	0.924	0.920	0.250	0.935	0.896	0.828	0.000	0.824	0.917	0.837	0.500	0.896	0.921	0.795	0.000	0.967
	0.914				0.891				0.904				0.969				

National Data & Surveying Services

Intersection Turning Movement Count

Location: N El Camino Real & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-008
Date: 10/24/2019

Bikes

NS/EW Streets:	N El Camino Real				N El Camino Real				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	4	0	0	2	3	1	0	2	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
8:00 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	3	0	5
8:15 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	1	1	0	5
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
8:45 AM	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	5	1	0	1	0	0	0	1	1	1	0	1	3	5	0	19
APPROACH %'s :	0.00%	83.33%	16.67%	0.00%	100.00%	0.00%	0.00%	0.00%	33.33%	33.33%	33.33%	0.00%	11.11%	33.33%	55.56%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	4	0	0	1	0	0	0	0	1	1	0	0	1	4	0	12
PEAK HR FACTOR :	0.000	0.333	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.333	0.000	0.600
		0.333				0.250				0.500				0.417			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	1	0	2	4	0	0	2	3	1	0	2	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:30 PM	0	0	0	0	1	2	0	0	0	0	0	0	0	2	2	0	7
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	4
5:00 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
5:30 PM	0	1	0	0	3	0	0	0	0	1	0	0	1	0	1	0	7
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	1	0	5	3	1	0	0	1	0	0	1	6	6	0	26
APPROACH %'s :	0.00%	66.67%	33.33%	0.00%	55.56%	33.33%	11.11%	0.00%	0.00%	100.00%	0.00%	0.00%	7.69%	46.15%	46.15%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	2	0	0	3	0	1	0	0	1	0	0	1	1	3	0	12
PEAK HR FACTOR :	0.00	0.500	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.250	0.250	0.375	0.000	0.429
		0.500				0.333				0.250				0.625			

National Data & Surveying Services

Intersection Turning Movement Count

Location: N El Camino Real & Leucadia Blvd
City: Encinitas
Project ID: 19-04410-008
Date: 10/24/2019

Pedestrians (Crosswalks)

NS/EW Streets:	N El Camino Real		N El Camino Real		Leucadia Blvd		Leucadia Blvd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	1	0	2	0	0	0	0	0	3
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	2	0	0	0	0	2
8:00 AM	0	0	1	0	1	0	0	0	2
8:15 AM	0	0	1	1	0	2	2	0	6
8:30 AM	0	1	0	0	0	1	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	1	4	3	1	3	2	0	15
APPROACH %'s :	50.00%	50.00%	57.14%	42.86%	25.00%	75.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	0	0	2	3	1	2	2	0	10
PEAK HR FACTOR :			0.500	0.375	0.250	0.250	0.250		0.417
			0.625		0.375		0.250		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	1	0	1	0	1	0	0	3
4:15 PM	0	3	0	1	2	0	1	1	8
4:30 PM	1	0	0	0	0	0	1	0	2
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	1	0	0	1	0	0	0	0	2
5:15 PM	0	1	0	0	0	0	0	1	2
5:30 PM	0	0	1	0	2	0	0	0	3
5:45 PM	0	0	1	0	0	0	3	0	4
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	2	5	2	3	4	1	5	2	24
APPROACH %'s :	28.57%	71.43%	40.00%	60.00%	80.00%	20.00%	71.43%	28.57%	
PEAK HR :	05:00 PM - 06:00 PM								TOTAL
PEAK HR VOL :	1	1	2	1	2	0	3	1	11
PEAK HR FACTOR :	0.250	0.250	0.500	0.250	0.250		0.250	0.250	0.688
	0.500		0.750		0.250		0.333		

Prepared by National Data & Surveying Services

N El Camino Real & Leucadia Blvd

Peak Hour Turning Movement Count

ID: 19-04410-008
City: Encinitas

Day: Thursday
Date: 10/24/2019

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	NONE
PM	05:00 PM - 06:00 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

N El Camino Real — SOUTHBOUND

AM	132	1585	97	3	796 AM
NOON	0	0	0	0	0 NOON
PM	159	849	157	0	1779 PM

EASTBOUND — Leucadia Blvd

AM	NOON	PM	
1344	0	982	
0	0	6	0
105	0	224	2
422	0	895	3
100	0	144	1

WESTBOUND — Leucadia Blvd

PM	NOON	AM	
140	0	111	0
652	0	1146	3
502	0	983	2
0	0	0	0
2020	0	933	

CONTROL

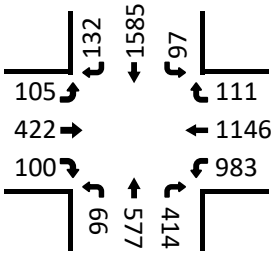
Signalized

TEV	5742 AM	0 NOON	6277 PM
PHF	0.97		0.97

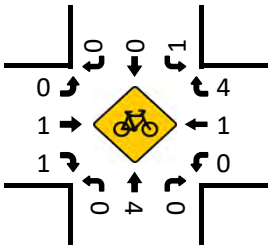
NORTHBOUND — N El Camino Real

PM	1496	1	165	1415	968 PM
NOON	0	0	0	0	0 NOON
AM	2669	1	66	577	414 AM

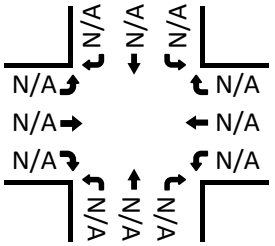
Total Vehicles (AM)



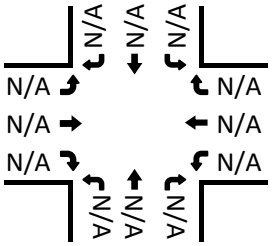
Bikes (AM)



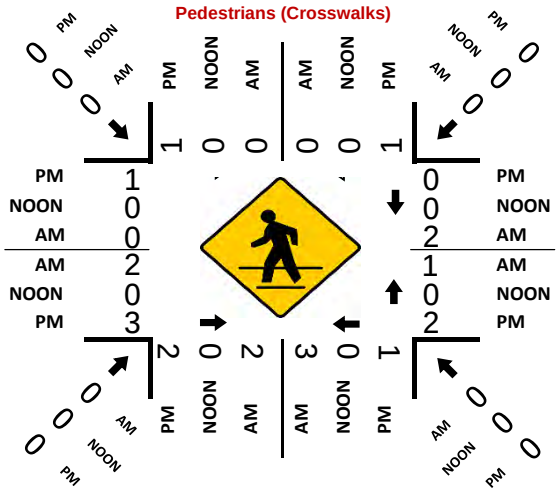
Total Vehicles (Noon)



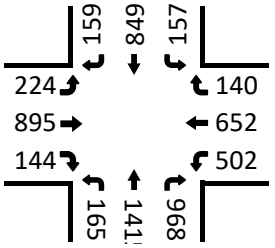
Bikes (NOON)



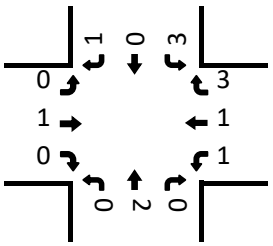
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Quail Gardens Dr & Dramm & Echter Dwy
City: Encinitas
Control: 1-Way Stop (EB)

Project ID: 19-04410-009
Date: 10/24/2019

Total

NS/EW Streets:	Quail Gardens Dr				Quail Gardens Dr				Dramm & Echter Dwy				Dramm & Echter Dwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	15	0	0	0	25	2	0	0	0	0	0	0	0	0	0	43
7:15 AM	4	10	0	0	0	31	0	0	0	0	1	0	0	0	0	0	46
7:30 AM	2	24	0	0	0	31	0	0	1	0	0	0	0	0	0	0	58
7:45 AM	2	17	0	0	0	37	1	0	0	0	2	0	0	0	0	0	59
8:00 AM	1	19	0	0	0	39	0	0	0	0	3	0	0	0	0	0	62
8:15 AM	4	20	0	0	0	41	1	0	0	0	3	0	0	0	0	0	69
8:30 AM	3	29	0	0	0	35	2	0	0	0	1	0	0	0	0	0	70
8:45 AM	5	21	0	0	0	31	0	0	0	0	4	0	0	0	0	0	61
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	22	155	0	0	0	270	6	0	1	0	14	0	0	0	0	0	468
APPROACH %'s :	12.43%	87.57%	0.00%	0.00%	0.00%	97.83%	2.17%	0.00%	6.67%	0.00%	93.33%	0.00%					
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	13	89	0	0	0	146	3	0	0	0	11	0	0	0	0	0	262
PEAK HR FACTOR :	0.650	0.767	0.000	0.000	0.000	0.890	0.375	0.000	0.000	0.000	0.688	0.000	0.000	0.000	0.000	0.000	0.936
	0.797				0.887				0.688								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	38	0	0	0	33	0	0	0	0	6	0	0	0	0	0	78
4:15 PM	3	29	0	0	0	41	2	0	0	0	5	0	0	0	0	0	80
4:30 PM	2	32	0	0	0	28	0	0	0	0	8	0	0	0	0	0	70
4:45 PM	1	33	0	0	0	39	1	0	0	0	2	0	0	0	0	0	76
5:00 PM	1	39	0	4	0	33	0	0	1	0	1	0	0	0	0	0	79
5:15 PM	1	35	0	0	0	45	0	0	2	0	1	0	0	0	0	0	84
5:30 PM	0	25	0	0	0	37	0	0	1	0	1	0	0	0	0	0	64
5:45 PM	0	28	0	0	0	30	1	0	0	0	0	0	0	0	0	0	59
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	259	0	4	0	286	4	0	4	0	24	0	0	0	0	0	590
APPROACH %'s :	3.31%	95.22%	0.00%	1.47%	0.00%	98.62%	1.38%	0.00%	14.29%	0.00%	85.71%	0.00%					
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	5	139	0	4	0	145	1	0	3	0	12	0	0	0	0	0	309
PEAK HR FACTOR :	0.625	0.891	0.000	0.250	0.000	0.806	0.250	0.000	0.375	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.920
	0.841				0.811				0.469								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Quail Gardens Dr & Dramm & Echter Dwy
City: Encinitas
Control: 1-Way Stop (EB)

Project ID: 19-04410-009
Date: 10/24/2019

Bikes

NS/EW Streets:	Quail Gardens Dr				Quail Gardens Dr				Dramm & Echter Dwy				Dramm & Echter Dwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
		0.250															

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
APPROACH %'s :					0.00%	100.00%	0.00%	0.00%									
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services

Intersection Turning Movement Count

Location: Quail Gardens Dr & Dramm & Echter Dwy **Project ID:** 19-04410-009
City: Encinitas **Date:** 10/24/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Quail Gardens Dr		Quail Gardens Dr		Dramm & Echter Dwy		Dramm & Echter Dwy		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	1	0	0	1	4	6
7:15 AM	0	0	0	0	0	0	1	0	1
7:30 AM	0	0	0	1	0	0	4	0	5
7:45 AM	0	0	0	1	0	0	1	0	2
8:00 AM	0	2	0	0	0	0	2	2	6
8:15 AM	0	1	0	0	0	0	1	0	2
8:30 AM	0	1	0	0	0	0	1	1	3
8:45 AM	0	1	0	0	0	0	0	3	4
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	5	0	3	0	0	11	10	29
APPROACH %'s :	0.00%	100.00%	0.00%	100.00%			52.38%	47.62%	
PEAK HR :	**08:00 AM - 09:00 AM**								TOTAL
PEAK HR VOL :	0	5	0	0	0	0	4	6	15
PEAK HR FACTOR :	0.625						0.500	0.500	0.625
	0.625						0.625		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	1	0	0	0	0	1	2
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	1	1
5:15 PM	0	0	0	0	0	0	2	1	3
5:30 PM	0	0	2	0	0	0	1	0	3
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	3	0	0	0	3	3	9
APPROACH %'s :			100.00%	0.00%			50.00%	50.00%	
PEAK HR :	**04:30 PM - 05:30 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	2	2	4
PEAK HR FACTOR :							0.250	0.500	0.333
							0.333		

Prepared by National Data & Surveying Services

Quail Gardens Dr & Dramm & Echter Dwy

Peak Hour Turning Movement Count

ID: 19-04410-009
City: Encinitas

Day: Thursday
Date: 10/24/2019

	PEAK HOURS	COUNT PERIODS
AM	08:00 AM - 09:00 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

Quail Gardens Dr — SOUTHBOUND

	Right	Thru	Left	U-Turn	Departing
AM	3	146	0	0	89
NOON	0	0	0	0	0
PM	1	145	0	0	142
Bikes	0	1	0	0	

Dramm & Echter Dwy — EASTBOUND

	AM	NOON	PM	Bikes
Departing	16	0	6	
U-Turn	0	0	0	0
Left	0	0	3	0
Thru	0	0	0	1
Right	11	0	12	0

Dramm & Echter Dwy — WESTBOUND

	PM	NOON	AM	Bikes
Right	0	0	0	0
Thru	0	0	0	0
Left	0	0	0	0
U-Turn	0	0	0	0
Departing	0	0	0	

Quail Gardens Dr — NORTHBOUND

	Departing	U-Turn	Left	Thru	Right
PM	161	4	5	139	0
NOON	0	0	0	0	0
AM	157	0	13	89	0
Bikes		0	1	1	0

CONTROL

1-Way Stop (EB)

	AM	NOON	PM
TEV	262	0	309
PHF	0.94		0.92

Total Vehicles (AM)

SB: 3, 146, 0; EB: 0, 0, 11; WB: 0, 0, 0; NB: 13, 89, 0

Total Vehicles (Noon)

SB: N/A, N/A, N/A; EB: N/A, N/A, N/A; WB: N/A, N/A, N/A; NB: N/A, N/A, N/A

Total Vehicles (PM)

SB: 1, 145, 0; EB: 3, 0, 12; WB: 0, 0, 0; NB: 5, 139, 0

Bikes (AM)

SB: 0, 0, 0; EB: 0, 0, 0; WB: 0, 0, 0; NB: 0, 1, 0

Bikes (NOON)

SB: N/A, N/A, N/A; EB: N/A, N/A, N/A; WB: N/A, N/A, N/A; NB: N/A, N/A, N/A

Bikes (PM)

SB: 0, 0, 0; EB: 0, 0, 0; WB: 0, 0, 0; NB: 0, 0, 0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg (west side)	0	0	0
North leg (east side)	5	0	0
West leg (north)	6	0	2
West leg (south)	4	0	2
East leg (north)	0	0	0
East leg (south)	0	0	0
South leg (west side)	0	0	0
South leg (east side)	0	0	0
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: Sidonia St & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-010
Date: 10/24/2019

Total

NS/EW Streets:	Sidonia St				Sidonia St				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1	0	1	0	1	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	5	0	1	0	1	186	0	3	0	295	4	0	495
7:15 AM	0	0	0	0	8	0	6	0	2	164	0	0	0	281	1	0	462
7:30 AM	0	0	0	0	6	0	1	0	5	157	0	2	0	315	4	0	490
7:45 AM	0	0	0	0	6	0	4	0	2	217	0	1	0	329	1	0	560
8:00 AM	0	0	0	0	5	0	4	0	0	214	0	0	0	288	4	0	515
8:15 AM	0	0	0	0	5	0	2	0	2	193	0	0	0	312	3	0	517
8:30 AM	0	0	0	0	2	0	1	0	4	219	0	0	0	301	3	0	530
8:45 AM	0	0	0	0	5	0	3	0	3	225	0	1	0	262	4	0	503
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	42	0	22	0	19	1575	0	7	0	2383	24	0	4072
APPROACH %'s :					65.63%	0.00%	34.38%	0.00%	1.19%	98.38%	0.00%	0.44%	0.00%	99.00%	1.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	18	0	11	0	8	843	0	1	0	1230	11	0	2122
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.750	0.000	0.688	0.000	0.500	0.962	0.000	0.250	0.000	0.935	0.688	0.000	0.947
							0.725				0.955				0.940		

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1	0	1	0	1	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	7	0	2	0	1	357	0	2	0	299	10	0	678
4:15 PM	0	0	0	0	7	0	1	0	4	266	0	0	0	288	10	0	576
4:30 PM	0	0	0	0	7	0	1	0	3	336	0	0	0	263	6	0	616
4:45 PM	0	0	0	0	7	0	3	0	4	289	0	0	0	295	6	0	604
5:00 PM	0	0	0	0	1	0	3	0	6	324	0	0	0	292	6	0	632
5:15 PM	0	0	0	0	3	0	6	0	9	315	0	2	0	295	4	0	634
5:30 PM	0	0	0	0	2	0	5	0	5	343	0	0	0	275	3	0	633
5:45 PM	0	0	0	0	3	0	1	0	8	321	0	5	0	271	2	0	611
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	37	0	22	0	40	2551	0	9	0	2278	47	0	4984
APPROACH %'s :					62.71%	0.00%	37.29%	0.00%	1.54%	98.12%	0.00%	0.35%	0.00%	97.98%	2.02%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	9	0	15	0	28	1303	0	7	0	1133	15	0	2510
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.750	0.000	0.625	0.000	0.778	0.950	0.000	0.350	0.000	0.960	0.625	0.000	0.990
							0.667				0.961				0.960		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Sidonia St & Leucadia Blvd
City: Encinitas
Control: Signalized

Project ID: 19-04410-010
Date: 10/24/2019

Bikes

NS/EW Streets:	Sidonia St				Sidonia St				Leucadia Blvd				Leucadia Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1	0	1	0	1	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	0	9
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	7
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.500	0.000	0.000	0.875
										0.750				0.500			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1	0	1	0	1	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	1	1	0	0	0	6	1	0	9
APPROACH %'s :									50.00%	50.00%	0.00%	0.00%	0.00%	85.71%	14.29%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	1	0	0	0	0	3	0	0	4
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.500
										0.250				0.750			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Sidonia St & Leucadia Blvd
City: Encinitas
Project ID: 19-04410-010
Date: 10/24/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Sidonia St		Sidonia St		Leucadia Blvd		Leucadia Blvd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	1	3	0	0	0	0	0	0	4
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	2	1	0	0	0	0	0	0	3
8:00 AM	0	1	0	0	0	0	0	0	1
8:15 AM	1	0	0	0	0	0	1	0	2
8:30 AM	1	1	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	5	6	0	0	0	0	1	0	12
APPROACH %'s :	45.45%	54.55%					100.00%	0.00%	
PEAK HR :	**07:45 AM - 08:45 AM**								TOTAL
PEAK HR VOL :	4	3	0	0	0	0	1	0	8
PEAK HR FACTOR :	0.500	0.750					0.250		0.667
	0.583						0.250		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	1
5:15 PM	0	1	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	1	0	0	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	2	0	0	0	0	0	0	3
APPROACH %'s :	33.33%	66.67%							
PEAK HR :	**05:00 PM - 06:00 PM**								TOTAL
PEAK HR VOL :	1	2	0	0	0	0	0	0	3
PEAK HR FACTOR :	0.250	0.500							0.750
	0.750								

Prepared by National Data & Surveying Services

Sidonia St & Leucadia Blvd

Peak Hour Turning Movement Count

ID: 19-04410-010
City: Encinitas

Day: Thursday
Date: 10/24/2019

PEAK HOURS	COUNT PERIODS
07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

SOUTHBOUND — Sidonia St

AM	11	0	18	0	19	AM
NOON	0	0	0	0	0	NOON
PM	15	0	9	0	43	PM

EASTBOUND — Leucadia Blvd

AM	NOON	PM	
1242	0	1155	⇦
1	0	7	↶ 0
8	0	28	↱ 1
843	0	1303	→ 2
0	0	0	↴ 0
AM	NOON	PM	

WESTBOUND — Leucadia Blvd

PM	NOON	AM	
15	0	11	↰ 0
1133	0	1230	← 2
0	0	0	↶ 0
0	0	0	↶ 0
1312	0	861	⇨
PM	NOON	AM	

NORTHBOUND — Sidonia St

PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

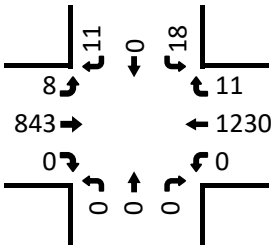
	1	0	1	0
	0	0	0	0

CONTROL

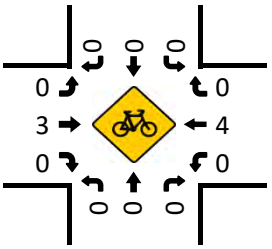
Signalized

TEV	2122 AM	0 NOON	2510 PM
PHF	0.95		0.99

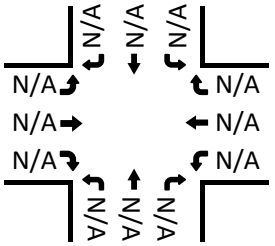
Total Vehicles (AM)



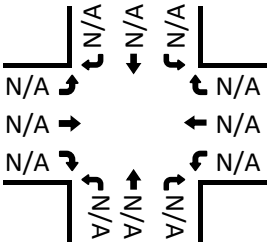
Bikes (AM)



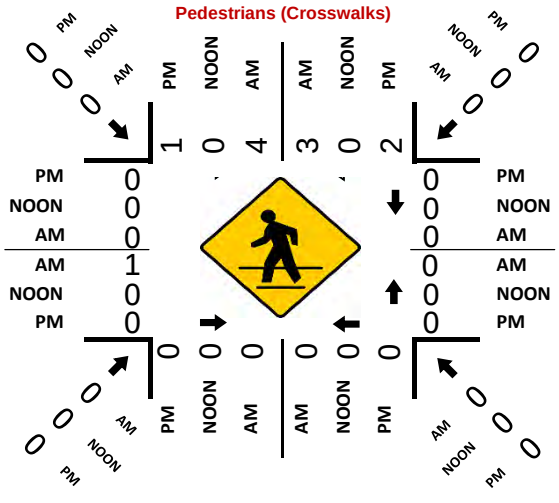
Total Vehicles (Noon)



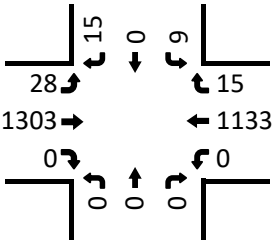
Bikes (NOON)



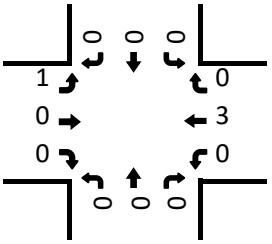
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by NDS/ATD

VOLUME

Leucadia Blvd Bet. Del Riego Ave & Saxony Rd

Day: Thursday
Date: 10/24/2019

City: Encinitas
Project #: CA19_4409_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	16,438	15,965	32,403

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			17		24		41		12:00			275		247		522	
0:15			19		17		36		12:15			287		266		553	
0:30			10		10		20		12:30			272		280		552	
0:45			15	61	9	60	24	121	12:45			291	1125	334	1127	625	2252
1:00			7		6		13		13:00			272		286		558	
1:15			5		9		14		13:15			286		266		552	
1:30			8		8		16		13:30			358		252		610	
1:45			8	28	1	24	9	52	13:45			306	1222	256	1060	562	2282
2:00			8		3		11		14:00			282		269		551	
2:15			5		3		8		14:15			308		286		594	
2:30			4		5		9		14:30			290		238		528	
2:45			7	24	2	13	9	37	14:45			285	1165	295	1088	580	2253
3:00			3		4		7		15:00			288		283		571	
3:15			8		10		18		15:15			272		312		584	
3:30			6		12		18		15:30			292		282		574	
3:45			12	29	10	36	22	65	15:45			309	1161	305	1182	614	2343
4:00			12		13		25		16:00			306		280		586	
4:15			12		20		32		16:15			269		267		536	
4:30			18		31		49		16:30			310		251		561	
4:45			61	103	46	110	107	213	16:45			280	1165	285	1083	565	2248
5:00			29		64		93		17:00			320		307		627	
5:15			44		70		114		17:15			328		276		604	
5:30			68		80		148		17:30			306		289		595	
5:45			86	227	99	313	185	540	17:45			307	1261	298	1170	605	2431
6:00			82		142		224		18:00			286		230		516	
6:15			135		160		295		18:15			266		234		500	
6:30			142		181		323		18:30			309		234		543	
6:45			159	518	195	678	354	1196	18:45			308	1169	223	921	531	2090
7:00			202		233		435		19:00			235		245		480	
7:15			207		228		435		19:15			243		202		445	
7:30			182		261		443		19:30			188		141		329	
7:45			237	828	293	1015	530	1843	19:45			178	844	130	718	308	1562
8:00			235		258		493		20:00			155		158		313	
8:15			193		280		473		20:15			173		117		290	
8:30			213		253		466		20:30			137		153		290	
8:45			218	859	265	1056	483	1915	20:45			131	596	101	529	232	1125
9:00			221		233		454		21:00			135		129		264	
9:15			220		228		448		21:15			132		107		239	
9:30			251		255		506		21:30			110		103		213	
9:45			249	941	234	950	483	1891	21:45			95	472	88	427	183	899
10:00			255		227		482		22:00			70		70		140	
10:15			267		257		524		22:15			61		51		112	
10:30			280		235		515		22:30			56		43		99	
10:45			292	1094	270	989	562	2083	22:45			61	248	39	203	100	451
11:00			262		267		529		23:00			47		43		90	
11:15			294		283		577		23:15			19		37		56	
11:30			268		281		549		23:30			43		30		73	
11:45			327	1151	252	1083	579	2234	23:45			38	147	20	130	58	277
TOTALS				5863		6327		**12190**	**TOTALS**				10575		9638		**20213**
SPLIT %				48.1%		51.9%		**37.6%**	**SPLIT %**				52.3%		47.7%		**62.4%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	16,438	15,965	32,403

AM Peak Hour			11:15	10:45	**11:00**	**PM Peak Hour**	17:00	15:00	**17:00**
AM Pk Volume			1164	1101	**2234**	**PM Pk Volume**	1261	1182	**2431**
Pk Hr Factor			0.890	0.973	**0.965**	**Pk Hr Factor**	0.961	0.947	**0.969**
7 - 9 Volume	0	0	1687	2071	**3758**	**4 - 6 Volume**	0	0	2426	2253	**4679**
7 - 9 Peak Hour			7:45	7:30	**7:45**	**4 - 6 Peak Hour**			17:00	17:00	**17:00**
7 - 9 Pk Volume	0	0	878	1092	**1962**	**4 - 6 Pk Volume**	0	0	1261	1170	**2431**
Pk Hr Factor	0.000	0.000	0.926	0.932	**0.925**	**Pk Hr Factor**	0.000	0.000	0.961	0.953	**0.969**

Prepared by NDS/ATD

VOLUME

Leucadia Blvd Bet. Saxony Rd & Sidonia St

Day: Thursday
Date: 10/24/2019

City: Encinitas
Project #: CA19_4409_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	17,698	16,551	34,249

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			16		23		39		12:00			311		245		556	
0:15			15		12		27		12:15			305		291		596	
0:30			9		8		17		12:30			295		268		563	
0:45			14	54	9	52	23	106	12:45			309	1220	336	1140	645	2360
1:00			5		5		10		13:00			301		294		595	
1:15			6		9		15		13:15			294		259		553	
1:30			5		8		13		13:30			346		267		613	
1:45			9	25	2	24	11	49	13:45			315	1256	268	1088	583	2344
2:00			7		3		10		14:00			303		271		574	
2:15			5		2		7		14:15			290		278		568	
2:30			4		5		9		14:30			317		250		567	
2:45			9	25	3	13	12	38	14:45			301	1211	318	1117	619	2328
3:00			2		4		6		15:00			302		274		576	
3:15			7		10		17		15:15			291		326		617	
3:30			6		11		17		15:30			306		275		581	
3:45			11	26	10	35	21	61	15:45			312	1211	306	1181	618	2392
4:00			10		15		25		16:00			349		283		632	
4:15			13		19		32		16:15			285		310		595	
4:30			15		31		46		16:30			299		253		552	
4:45			46	84	51	116	97	200	16:45			313	1246	291	1137	604	2383
5:00			27		66		93		17:00			319		307		626	
5:15			36		73		109		17:15			332		288		620	
5:30			61		76		137		17:30			360		263		623	
5:45			82	206	114	329	196	535	17:45			327	1338	299	1157	626	2495
6:00			66		145		211		18:00			322		231		553	
6:15			122		157		279		18:15			303		227		530	
6:30			122		201		323		18:30			297		265		562	
6:45			163	473	228	731	391	1204	18:45			301	1223	220	943	521	2166
7:00			195		281		476		19:00			233		246		479	
7:15			189		278		467		19:15			250		187		437	
7:30			165		324		489		19:30			202		143		345	
7:45			212	761	343	1226	555	1987	19:45			188	873	135	711	323	1584
8:00			213		287		500		20:00			154		158		312	
8:15			202		329		531		20:15			172		134		306	
8:30			222		317		539		20:30			143		149		292	
8:45			241	878	297	1230	538	2108	20:45			136	605	100	541	236	1146
9:00			315		268		583		21:00			143		115		258	
9:15			288		243		531		21:15			131		91		222	
9:30			315		264		579		21:30			115		87		202	
9:45			283	1201	249	1024	532	2225	21:45			107	496	77	370	184	866
10:00			339		221		560		22:00			90		59		149	
10:15			360		256		616		22:15			66		54		120	
10:30			341		241		582		22:30			68		36		104	
10:45			360	1400	280	998	640	2398	22:45			65	289	36	185	101	474
11:00			345		286		631		23:00			47		36		83	
11:15			348		274		622		23:15			26		28		54	
11:30			344		287		631		23:30			39		25		64	
11:45			409	1446	249	1096	658	2542	23:45			39	151	18	107	57	258
TOTALS				6579		6874		**13453**	**TOTALS**				11119		9677		**20796**
SPLIT %				48.9%		51.1%		**39.3%**	**SPLIT %**				53.5%		46.5%		**60.7%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	17,698	16,551	34,249

AM Peak Hour				11:00		7:30		**11:00**	**PM Peak Hour**				17:15		14:45		**17:00**
AM Pk Volume				1446		1283		**2542**	**PM Pk Volume**				1341		1193		**2495**
Pk Hr Factor				0.884		0.935		**0.966**	**Pk Hr Factor**				0.931		0.915		**0.996**
7 - 9 Volume	0	0		1639		2456		**4095**	**4 - 6 Volume**	0	0		2584		2294		**4878**
7 - 9 Peak Hour				8:00		7:30		**7:45**	**4 - 6 Peak Hour**				17:00		16:15		**17:00**
7 - 9 Pk Volume	0	0		878		1283		**2125**	**4 - 6 Pk Volume**	0	0		1338		1161		**2495**
Pk Hr Factor	0.000	0.000		0.911		0.935		**0.957**	**Pk Hr Factor**	0.000	0.000		0.929		0.936		**0.996**

Prepared by NDS/ATD

VOLUME

Leucadia Blvd Bet. Sidonia St & Quail Gardens Dr

Day: Thursday
Date: 10/24/2019

City: Encinitas
Project #: CA19_4409_003

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	18,252	16,495	34,747

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			19		22		41		12:00			327		255		582	
0:15			16		13		29		12:15			331		285		616	
0:30			10		8		18		12:30			321		268		589	
0:45			17	62	9	52	26	114	12:45			349	1328	325	1133	674	2461
1:00			5		5		10		13:00			337		299		636	
1:15			9		10		19		13:15			311		248		559	
1:30			5		5		10		13:30			379		268		647	
1:45			10	29	3	23	13	52	13:45			337	1364	278	1093	615	2457
2:00			8		3		11		14:00			318		262		580	
2:15			9		3		12		14:15			310		284		594	
2:30			4		4		8		14:30			353		265		618	
2:45			10	31	0	10	10	41	14:45			311	1292	309	1120	620	2412
3:00			2		6		8		15:00			296		281		577	
3:15			9		9		18		15:15			291		308		599	
3:30			7		11		18		15:30			325		277		602	
3:45			12	30	11	37	23	67	15:45			323	1235	304	1170	627	2405
4:00			12		13		25		16:00			346		298		644	
4:15			18		18		36		16:15			288		302		590	
4:30			19		33		52		16:30			330		260		590	
4:45			58	107	51	115	109	222	16:45			310	1274	306	1166	616	2440
5:00			32		65		97		17:00			311		289		600	
5:15			39		71		110		17:15			329		303		632	
5:30			77		83		160		17:30			332		268		600	
5:45			101	249	109	328	210	577	17:45			326	1298	288	1148	614	2446
6:00			80		149		229		18:00			315		232		547	
6:15			141		148		289		18:15			312		222		534	
6:30			154		207		361		18:30			329		259		588	
6:45			174	549	220	724	394	1273	18:45			339	1295	232	945	571	2240
7:00			202		292		494		19:00			275		234		509	
7:15			185		290		475		19:15			269		193		462	
7:30			151		311		462		19:30			245		135		380	
7:45			231	769	335	1228	566	1997	19:45			221	1010	133	695	354	1705
8:00			206		283		489		20:00			182		164		346	
8:15			212		323		535		20:15			185		127		312	
8:30			236		310		546		20:30			175		155		330	
8:45			213	867	281	1197	494	2064	20:45			158	700	99	545	257	1245
9:00			270		262		532		21:00			163		115		278	
9:15			270		237		507		21:15			151		94		245	
9:30			266		260		526		21:30			140		86		226	
9:45			254	1060	257	1016	511	2076	21:45			129	583	74	369	203	952
10:00			291		223		514		22:00			101		63		164	
10:15			310		252		562		22:15			83		52		135	
10:30			326		258		584		22:30			81		39		120	
10:45			331	1258	277	1010	608	2268	22:45			78	343	35	189	113	532
11:00			293		269		562		23:00			53		36		89	
11:15			327		272		599		23:15			39		28		67	
11:30			329		286		615		23:30			47		24		71	
11:45			380	1329	248	1075	628	2404	23:45			51	190	19	107	70	297
TOTALS				6340		6815		**13155**	**TOTALS**				11912	19	9680		**21592**
SPLIT %				48.2%		51.8%		**37.9%**	**SPLIT %**				55.2%		44.8%		**62.1%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	18,252	16,495	34,747

AM Peak Hour			11:30	7:30	**11:30**	**PM Peak Hour**			12:45	15:15	**12:45**
AM Pk Volume			1367	1252	**2441**	**PM Pk Volume**			1376	1187	**2516**
Pk Hr Factor			0.899	0.934	**0.972**	**Pk Hr Factor**			0.908	0.963	**0.933**
7 - 9 Volume	0	0	1636	2425	**4061**	**4 - 6 Volume**	0	0	2572	2314	**4886**
7 - 9 Peak Hour			7:45	7:30	**7:45**	**4 - 6 Peak Hour**			17:00	16:00	**16:45**
7 - 9 Pk Volume	0	0	885	1252	**2136**	**4 - 6 Pk Volume**	0	0	1298	1166	**2448**
Pk Hr Factor	0.000	0.000	0.938	0.934	**0.943**	**Pk Hr Factor**	0.000	0.000	0.977	0.953	**0.968**

Prepared by NDS/ATD

VOLUME

Leucadia Blvd Bet. Quail Gardens Dr & Garden View Rd

Day: Thursday
Date: 10/24/2019

City: Encinitas
Project #: CA19_4409_004

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	19,062	18,672	37,734

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			18		24		42		12:00			317		293		610	
0:15			18		14		32		12:15			333		306		639	
0:30			8		9		17		12:30			347		308		655	
0:45			16	60	11	58	27	118	12:45			339	1336	360	1267	699	2603
1:00			7		4		11		13:00			318		319		637	
1:15			6		9		15		13:15			329		275		604	
1:30			4		9		13		13:30			366		303		669	
1:45			8	25	3	25	11	50	13:45			350	1363	307	1204	657	2567
2:00			7		2		9		14:00			363		286		649	
2:15			8		5		13		14:15			371		331		702	
2:30			4		4		8		14:30			351		286		637	
2:45			9	28	1	12	10	40	14:45			352	1437	353	1256	705	2693
3:00			3		5		8		15:00			353		340		693	
3:15			7		10		17		15:15			384		347		731	
3:30			6		11		17		15:30			370		303		673	
3:45			11	27	11	37	22	64	15:45			382	1489	351	1341	733	2830
4:00			7		16		23		16:00			404		309		713	
4:15			13		18		31		16:15			383		323		706	
4:30			17		38		55		16:30			361		303		664	
4:45			38	75	53	125	91	200	16:45			419	1567	315	1250	734	2817
5:00			27		68		95		17:00			378		322		700	
5:15			32		80		112		17:15			411		334		745	
5:30			69		89		158		17:30			389		292		681	
5:45			90	218	119	356	209	574	17:45			403	1581	309	1257	712	2838
6:00			64		159		223		18:00			320		271		591	
6:15			115		183		298		18:15			334		258		592	
6:30			130		245		375		18:30			355		271		626	
6:45			158	467	265	852	423	1319	18:45			334	1343	255	1055	589	2398
7:00			215		356		571		19:00			266		256		522	
7:15			260		382		642		19:15			274		207		481	
7:30			176		404		580		19:30			235		149		384	
7:45			256	907	403	1545	659	2452	19:45			199	974	154	766	353	1740
8:00			257		330		587		20:00			173		174		347	
8:15			226		408		634		20:15			182		150		332	
8:30			242		360		602		20:30			174		172		346	
8:45			223	948	357	1455	580	2403	20:45			143	672	113	609	256	1281
9:00			268		305		573		21:00			145		122		267	
9:15			258		277		535		21:15			148		103		251	
9:30			227		299		526		21:30			113		102		215	
9:45			272	1025	281	1162	553	2187	21:45			119	525	80	407	199	932
10:00			280		255		535		22:00			89		64		153	
10:15			289		283		572		22:15			70		51		121	
10:30			303		277		580		22:30			70		38		108	
10:45			305	1177	328	1143	633	2320	22:45			67	296	41	194	108	490
11:00			354		306		660		23:00			48		34		82	
11:15			315		290		605		23:15			34		31		65	
11:30			325		312		637		23:30			35		26		61	
11:45			368	1362	281	1189	649	2551	23:45			43	160	16	107	59	267
TOTALS				6319		7959		**14278**	**TOTALS**				12743		10713		**23456**
SPLIT %				44.3%		55.7%		**37.8%**	**SPLIT %**				54.3%		45.7%		**62.2%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	19,062	18,672	37,734

AM Peak Hour				11:45		7:00		**11:45**	**PM Peak Hour**				16:45		14:45		**16:45**
AM Pk Volume				1365		1545		**2553**	**PM Pk Volume**				1597		1343		**2860**
Pk Hr Factor				0.927		0.956		**0.974**	**Pk Hr Factor**				0.953		0.951		**0.960**
7 - 9 Volume	0	0		1855		3000		**4855**	**4 - 6 Volume**	0	0		3148		2507		**5655**
7 - 9 Peak Hour				7:45		7:00		**7:45**	**4 - 6 Peak Hour**				16:45		16:30		**16:45**
7 - 9 Pk Volume	0	0		981		1545		**2482**	**4 - 6 Pk Volume**	0	0		1597		1274		**2860**
Pk Hr Factor	0.000	0.000		0.954		0.956		**0.942**	**Pk Hr Factor**	0.000	0.000		0.953		0.954		**0.960**

Prepared by NDS/ATD

VOLUME

Leucadia Blvd Bet. Garden View Rd & Town Center Pl

Day: Thursday
Date: 10/24/2019

City: Encinitas
Project #: CA19_4409_005

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	13,972	14,393	28,365

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			14		18		32		12:00			252		245		497	
0:15			13		13		26		12:15			237		265		502	
0:30			9		9		18		12:30			229		235		464	
0:45			13	49	9	49	22	98	12:45			249	967	281	1026	530	1993
1:00			7		7		14		13:00			239		241		480	
1:15			6		9		15		13:15			224		216		440	
1:30			3		5		8		13:30			255		237		492	
1:45			8	24	4	25	12	49	13:45			281	999	218	912	499	1911
2:00			5		1		6		14:00			239		241		480	
2:15			9		4		13		14:15			275		216		491	
2:30			3		3		6		14:30			274		221		495	
2:45			7	24	2	10	9	34	14:45			237	1025	279	957	516	1982
3:00			4		6		10		15:00			242		242		484	
3:15			3		9		12		15:15			271		220		491	
3:30			6		8		14		15:30			270		223		493	
3:45			8	21	11	34	19	55	15:45			283	1066	258	943	541	2009
4:00			6		12		18		16:00			251		221		472	
4:15			10		15		25		16:15			310		228		538	
4:30			10		32		42		16:30			295		239		534	
4:45			17	43	41	100	58	143	16:45			274	1130	236	924	510	2054
5:00			19		61		80		17:00			292		246		538	
5:15			24		62		86		17:15			293		239		532	
5:30			55		78		133		17:30			303		235		538	
5:45			69	167	115	316	184	483	17:45			280	1168	223	943	503	2111
6:00			48		130		178		18:00			239		173		412	
6:15			86		178		264		18:15			276		212		488	
6:30			99		178		277		18:30			232		216		448	
6:45			120	353	230	716	350	1069	18:45			279	1026	175	776	454	1802
7:00			180		284		464		19:00			220		207		427	
7:15			190		312		502		19:15			220		158		378	
7:30			120		360		480		19:30			177		105		282	
7:45			150	640	329	1285	479	1925	19:45			171	788	111	581	282	1369
8:00			176		246		422		20:00			132		114		246	
8:15			157		305		462		20:15			138		111		249	
8:30			163		263		426		20:30			146		112		258	
8:45			162	658	297	1111	459	1769	20:45			113	529	94	431	207	960
9:00			174		232		406		21:00			129		89		218	
9:15			181		214		395		21:15			121		83		204	
9:30			165		230		395		21:30			93		68		161	
9:45			188	708	226	902	414	1610	21:45			94	437	68	308	162	745
10:00			179		208		387		22:00			78		43		121	
10:15			210		212		422		22:15			62		40		102	
10:30			219		221		440		22:30			65		26		91	
10:45			220	828	264	905	484	1733	22:45			54	259	34	143	88	402
11:00			218		229		447		23:00			40		26		66	
11:15			230		228		458		23:15			36		19		55	
11:30			225		242		467		23:30			31		22		53	
11:45			249	922	216	915	465	1837	23:45			34	141	14	81	48	222
TOTALS				4437		6368		**10805**	**TOTALS**				9535		8025		**17560**
SPLIT %				41.1%		58.9%		**38.1%**	**SPLIT %**				54.3%		45.7%		**61.9%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	13,972	14,393	28,365

AM Peak Hour				11:45		7:00		**11:30**	**PM Peak Hour**				16:15		12:00		**16:15**
AM Pk Volume				967		1285		**1931**	**PM Pk Volume**				1171		1026		**2120**
Pk Hr Factor				0.959		0.892		**0.962**	**Pk Hr Factor**				0.944		0.913		**0.985**
7 - 9 Volume	0	0		1298		2396		**3694**	**4 - 6 Volume**	0	0		2298		1867		**4165**
7 - 9 Peak Hour				8:00		7:00		**7:00**	**4 - 6 Peak Hour**				16:15		16:30		**16:15**
7 - 9 Pk Volume	0	0		658		1285		**1925**	**4 - 6 Pk Volume**	0	0		1171		960		**2120**
Pk Hr Factor	0.000	0.000		0.935		0.892		**0.959**	**Pk Hr Factor**	0.000	0.000		0.944		0.976		**0.985**

Prepared by NDS/ATD

VOLUME

Leucadia Blvd Bet. Town Center Pl & El Camino Real

Day: Thursday
Date: 10/24/2019

City: Encinitas
Project #: CA19_4409_006

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	15,060	14,683	29,743

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			21		15		36		12:00			271		262		533	
0:15			13		12		25		12:15			249		247		496	
0:30			11		8		19		12:30			257		250		507	
0:45			13	58	9	44	22	102	12:45			241	1018	240	999	481	2017
1:00			8		7		15		13:00			266		233		499	
1:15			8		9		17		13:15			246		197		443	
1:30			4		7		11		13:30			283		226		509	
1:45			8	28	2	25	10	53	13:45			281	1076	215	871	496	1947
2:00			5		2		7		14:00			281		227		508	
2:15			8		4		12		14:15			302		208		510	
2:30			5		5		10		14:30			289		211		500	
2:45			7	25	2	13	9	38	14:45			247	1119	302	948	549	2067
3:00			3		8		11		15:00			280		246		526	
3:15			2		9		11		15:15			289		211		500	
3:30			3		10		13		15:30			310		222		532	
3:45			5	13	19	46	24	59	15:45			328	1207	247	926	575	2133
4:00			7		18		25		16:00			296		221		517	
4:15			8		17		25		16:15			335		216		551	
4:30			8		37		45		16:30			316		260		576	
4:45			12	35	46	118	58	153	16:45			299	1246	225	922	524	2168
5:00			18		61		79		17:00			286		273		559	
5:15			23		62		85		17:15			348		245		593	
5:30			45		75		120		17:30			344		250		594	
5:45			58	144	127	325	185	469	17:45			318	1296	220	988	538	2284
6:00			48		140		188		18:00			302		200		502	
6:15			78		192		270		18:15			300		190		490	
6:30			98		199		297		18:30			254		188		442	
6:45			133	357	237	768	370	1125	18:45			311	1167	198	776	509	1943
7:00			180		315		495		19:00			266		183		449	
7:15			198		316		514		19:15			232		154		386	
7:30			146		424		570		19:30			222		102		324	
7:45			154	678	340	1395	494	2073	19:45			190	910	108	547	298	1457
8:00			176		278		454		20:00			176		110		286	
8:15			154		311		465		20:15			142		94		236	
8:30			163		313		476		20:30			163		104		267	
8:45			157	650	308	1210	465	1860	20:45			135	616	86	394	221	1010
9:00			182		254		436		21:00			148		75		223	
9:15			176		242		418		21:15			139		68		207	
9:30			172		258		430		21:30			111		60		171	
9:45			194	724	253	1007	447	1731	21:45			107	505	59	262	166	767
10:00			186		229		415		22:00			89		38		127	
10:15			201		223		424		22:15			70		41		111	
10:30			197		230		427		22:30			63		19		82	
10:45			222	806	245	927	467	1733	22:45			69	291	24	122	93	413
11:00			205		233		438		23:00			44		18		62	
11:15			243		248		491		23:15			51		10		61	
11:30			234		252		486		23:30			37		18		55	
11:45			241	923	259	992	500	1915	23:45			36	168	12	58	48	226
TOTALS				4441		6870		**11311**	**TOTALS**				10619		7813		**18432**
SPLIT %				39.3%		60.7%		**38.0%**	**SPLIT %**				57.6%		42.4%		**62.0%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	15,060	14,683	29,743

AM Peak Hour			11:45	7:00	**7:00**	**PM Peak Hour**			17:15	16:30	**17:00**
AM Pk Volume			1018	1395	**2073**	**PM Pk Volume**			1312	1003	**2284**
Pk Hr Factor			0.939	0.823	**0.909**	**Pk Hr Factor**			0.943	0.918	**0.961**
7 - 9 Volume	0	0	1328	2605	**3933**	**4 - 6 Volume**	0	0	2542	1910	**4452**
7 - 9 Peak Hour			7:00	7:00	**7:00**	**4 - 6 Peak Hour**			17:00	16:30	**17:00**
7 - 9 Pk Volume	0	0	678	1395	**2073**	**4 - 6 Pk Volume**	0	0	1296	1003	**2284**
Pk Hr Factor	0.000	0.000	0.856	0.823	**0.909**	**Pk Hr Factor**	0.000	0.000	0.931	0.918	**0.961**

Prepared by NDS/ATD

VOLUME

Quail Gardens Dr Bet. Ranch Rd & Leucadia Blvd

Day: Thursday
Date: 10/24/2019

City: Encinitas
Project #: CA19_4409_007

DAILY TOTALS	NB	SB	EB	WB	Total
	1,013	1,180	0	0	2,193

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	1		1						2		12:00	15		19						34	
00:15	1		0						1		12:15	27		16						43	
00:30	1		0						1		12:30	14		17						31	
00:45	0	3	0	1					0	4	12:45	20	76	20	72					40	148
01:00	0		0						0		13:00	15		18						33	
01:15	0		0						0		13:15	19		13						32	
01:30	1		1						2		13:30	12		15						27	
01:45	0	1	0	1					0	2	13:45	18	64	22	68					40	132
02:00	0		1						1		14:00	11		18						29	
02:15	1		0						1		14:15	12		18						30	
02:30	0		2						2		14:30	21		16						37	
02:45	0	1	0	3					0	4	14:45	15	59	29	81					44	140
03:00	0		0						0		15:00	24		22						46	
03:15	0		0						0		15:15	28		27						55	
03:30	0		0						0		15:30	26		20						46	
03:45	0		0						0		15:45	26	104	26	95					52	199
04:00	0		0						0		16:00	25		24						49	
04:15	0		1						1		16:15	19		30						49	
04:30	1		1						2		16:30	29		17						46	
04:45	0	1	3	5					3	6	16:45	20	93	17	88					37	181
05:00	0		0						0		17:00	37		21						58	
05:15	1		2						3		17:15	37		28						65	
05:30	1		6						7		17:30	24		25						49	
05:45	1	3	10	18					11	21	17:45	28	126	17	91					45	217
06:00	3		5						8		18:00	26		16						42	
06:15	4		7						11		18:15	27		16						43	
06:30	4		9						13		18:30	16		12						28	
06:45	5	16	19	40					24	56	18:45	20	89	13	57					33	146
07:00	2		26						28		19:00	16		6						22	
07:15	3		34						37		19:15	7		4						11	
07:30	13		24						37		19:30	9		8						17	
07:45	9	27	42	126					51	153	19:45	9	41	4	22					13	63
08:00	8		38						46		20:00	12		5						17	
08:15	14		42						56		20:15	9		4						13	
08:30	17		37						54		20:30	7		5						12	
08:45	12	51	33	150					45	201	20:45	9	37	3	17					12	54
09:00	14		30						44		21:00	5		6						11	
09:15	12		25						37		21:15	3		2						5	
09:30	15		19						34		21:30	6		5						11	
09:45	14	55	18	92					32	147	21:45	2	16	2	15					4	31
10:00	14		18						32		22:00	5		1						6	
10:15	17		14						31		22:15	3		1						4	
10:30	15		15						30		22:30	3		0						3	
10:45	19	65	13	60					32	125	22:45	1	12	0	2					1	14
11:00	17		26						43		23:00	1		0						1	
11:15	16		16						32		23:15	1		0						1	
11:30	22		17						39		23:30	2		1						3	
11:45	14	69	16	75					30	144	23:45	0	4	0	1					0	5
TOTALS		292		571						863	TOTALS		721		609						1330
SPLIT %		33.8%		66.2%						39.4%	SPLIT %		54.2%		45.8%						60.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	1,013	1,180	0	0	2,193

AM Peak Hour	11:30	07:45				07:45	PM Peak Hour	17:00	15:30				17:00
AM Pk Volume	78	159				207	PM Pk Volume	126	100				217
Pk Hr Factor	0.722	0.946				0.924	Pk Hr Factor	0.851	0.833				0.835
7 - 9 Volume	78	276	0	0		354	4 - 6 Volume	219	179	0	0		398
7 - 9 Peak Hour	08:00	07:45				07:45	4 - 6 Peak Hour	17:00	16:45				17:00
7 - 9 Pk Volume	51	159	0	0		207	4 - 6 Pk Volume	126	91	0	0		217
Pk Hr Factor	0.750	0.946	0.000	0.000		0.924	Pk Hr Factor	0.851	0.813	0.000	0.000		0.835

Prepared by NDS/ATD

VOLUME

Leucadia Blvd Bet. I-5 NB On/Off Ramps & Urania Ave

Day: Thursday
Date: 10/24/2019

City: Encinitas
Project #: CA19_4409_008

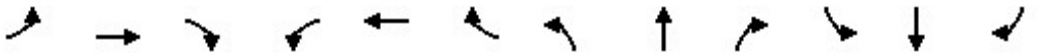
DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	16,017	16,210	32,227

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			20		30		50		12:00			270		244		514	
0:15			19		13		32		12:15			268		267		535	
0:30			14		11		25		12:30			275		290		565	
0:45			18	71	8	62	26	133	12:45			309	1122	310	1111	619	2233
1:00			7		8		15		13:00			264		294		558	
1:15			5		7		12		13:15			278		270		548	
1:30			8		8		16		13:30			343		261		604	
1:45			9	29	1	24	10	53	13:45			297	1182	263	1088	560	2270
2:00			8		4		12		14:00			290		254		544	
2:15			6		3		9		14:15			289		289		578	
2:30			4		4		8		14:30			294		249		543	
2:45			8	26	1	12	9	38	14:45			278	1151	284	1076	562	2227
3:00			3		4		7		15:00			274		281		555	
3:15			8		10		18		15:15			275		307		582	
3:30			7		12		19		15:30			274		258		532	
3:45			12	30	10	36	22	66	15:45			290	1113	325	1171	615	2284
4:00			12		13		25		16:00			281		281		562	
4:15			11		22		33		16:15			272		276		548	
4:30			22		34		56		16:30			291		252		543	
4:45			51	96	47	116	98	212	16:45			265	1109	276	1085	541	2194
5:00			27		68		95		17:00			320		307		627	
5:15			43		75		118		17:15			299		277		576	
5:30			66		94		160		17:30			307		290		597	
5:45			83	219	95	332	178	551	17:45			294	1220	295	1169	589	2389
6:00			78		157		235		18:00			295		248		543	
6:15			141		161		302		18:15			273		233		506	
6:30			126		184		310		18:30			313		226		539	
6:45			159	504	204	706	363	1210	18:45			299	1180	208	915	507	2095
7:00			176		258		434		19:00			244		232		476	
7:15			178		265		443		19:15			234		194		428	
7:30			152		277		429		19:30			193		134		327	
7:45			203	709	310	1110	513	1819	19:45			178	849	124	684	302	1533
8:00			218		282		500		20:00			162		163		325	
8:15			152		307		459		20:15			176		118		294	
8:30			190		290		480		20:30			136		145		281	
8:45			201	761	270	1149	471	1910	20:45			138	612	106	532	244	1144
9:00			211		244		455		21:00			137		125		262	
9:15			215		246		461		21:15			137		100		237	
9:30			241		243		484		21:30			110		104		214	
9:45			246	913	257	990	503	1903	21:45			93	477	88	417	181	894
10:00			249		232		481		22:00			74		70		144	
10:15			260		251		511		22:15			77		49		126	
10:30			279		257		536		22:30			53		39		92	
10:45			278	1066	266	1006	544	2072	22:45			64	268	38	196	102	464
11:00			275		273		548		23:00			46		46		92	
11:15			280		262		542		23:15			26		35		61	
11:30			268		294		562		23:30			46		32		78	
11:45			326	1149	258	1087	584	2236	23:45			43	161	23	136	66	297
TOTALS				5573		6630		**12203**	**TOTALS**				10444		9580		**20024**
SPLIT %				45.7%		54.3%		**37.9%**	**SPLIT %**				52.2%		47.8%		**62.1%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	16,017	16,210	32,227

AM Peak Hour			11:00	7:45	**11:00**	**PM Peak Hour**	17:00	15:00	**17:00**
AM Pk Volume			1149	1189	**2236**	**PM Pk Volume**	1220	1171	**2389**
Pk Hr Factor			0.881	0.959	**0.957**	**Pk Hr Factor**	0.953	0.901	**0.953**
7 - 9 Volume	0	0	1470	2259	**3729**	**4 - 6 Volume**	0	0	2329	2254	**4583**
7 - 9 Peak Hour			7:45	7:45	**7:45**	**4 - 6 Peak Hour**			17:00	17:00	**17:00**
7 - 9 Pk Volume	0	0	763	1189	**1952**	**4 - 6 Pk Volume**	0	0	1220	1169	**2389**
Pk Hr Factor	0.000	0.000	0.875	0.959	**0.951**	**Pk Hr Factor**	0.000	0.000	0.953	0.952	**0.953**

Appendix E
Peak Hour Intersection Capacity Worksheets
Existing Conditions



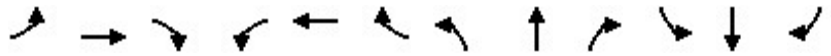
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	537	214	507	515	0	0	0	0	101	4	86
Future Volume (veh/h)	0	537	214	507	515	0	0	0	0	101	4	86
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	610	195	528	536	0				109	0	73
Peak Hour Factor	0.88	0.88	0.88	0.96	0.96	0.96				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	1018	444	741	2234	0				386	0	172
Arrive On Green	0.00	0.29	0.29	0.22	0.63	0.00				0.11	0.00	0.11
Sat Flow, veh/h	0	3618	1539	3428	3618	0				3534	0	1572
Grp Volume(v), veh/h	0	610	195	528	536	0				109	0	73
Grp Sat Flow(s),veh/h/ln	0	1763	1539	1714	1763	0				1767	0	1572
Q Serve(g_s), s	0.0	5.9	4.1	5.7	2.6	0.0				1.1	0.0	1.7
Cycle Q Clear(g_c), s	0.0	5.9	4.1	5.7	2.6	0.0				1.1	0.0	1.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1018	444	741	2234	0				386	0	172
V/C Ratio(X)	0.00	0.60	0.44	0.71	0.24	0.00				0.28	0.00	0.43
Avail Cap(c_a), veh/h	0	3558	1553	2162	6235	0				2229	0	992
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.1	11.5	14.4	3.1	0.0				16.2	0.0	16.5
Incr Delay (d2), s/veh	0.0	0.2	0.3	0.5	0.0	0.0				0.1	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.9	1.1	1.7	0.2	0.0				0.4	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.3	11.7	14.9	3.2	0.0				16.4	0.0	17.1
LnGrp LOS	A	B	B	B	A	A				B	A	B
Approach Vol, veh/h		805			1064						182	
Approach Delay, s/veh		12.2			9.0						16.7	
Approach LOS		B			A						B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	13.7	16.5		9.4		30.2
Change Period (Y+Rc), s	5.1	5.1		5.1		5.1
Max Green Setting (Gmax), s	25.0	40.0		25.0		70.1
Max Q Clear Time (g_c+I1), s	7.7	7.9		3.7		4.6
Green Ext Time (p_c), s	0.9	3.3		0.3		2.3

Intersection Summary	
HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

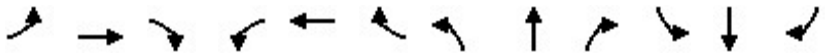


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	478	0	0	876	311	132	31	282	0	0	0
Future Volume (veh/h)	168	478	0	0	876	311	132	31	282	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	198	562	0	0	963	308	92	115	256			
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.88	0.88	0.88			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	235	2682	0	0	2157	689	197	207	350			
Arrive On Green	0.13	0.76	0.00	0.00	1.00	1.00	0.11	0.11	0.11			
Sat Flow, veh/h	1767	3618	0	0	3944	1206	1767	1856	3145			
Grp Volume(v), veh/h	198	562	0	0	861	410	92	115	256			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1689	1606	1767	1856	1572			
Q Serve(g_s), s	9.8	4.1	0.0	0.0	0.0	0.0	4.4	5.3	7.1			
Cycle Q Clear(g_c), s	9.8	4.1	0.0	0.0	0.0	0.0	4.4	5.3	7.1			
Prop In Lane	1.00		0.00	0.00		0.75	1.00		1.00			
Lane Grp Cap(c), veh/h	235	2682	0	0	1929	917	197	207	350			
V/C Ratio(X)	0.84	0.21	0.00	0.00	0.45	0.45	0.47	0.56	0.73			
Avail Cap(c_a), veh/h	530	2682	0	0	1929	917	412	433	734			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.85	0.85	0.00	0.00	0.96	0.96	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.1	3.1	0.0	0.0	0.0	0.0	37.5	37.9	38.7			
Incr Delay (d2), s/veh	2.7	0.2	0.0	0.0	0.7	1.5	0.6	0.9	1.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.3	0.9	0.0	0.0	0.2	0.4	1.9	2.4	2.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.8	3.2	0.0	0.0	0.7	1.5	38.1	38.8	39.8			
LnGrp LOS	D	A	A	A	A	A	D	D	D			
Approach Vol, veh/h		760			1271			463				
Approach Delay, s/veh		13.0			1.0			39.2				
Approach LOS		B			A			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		74.9			17.1	57.8		15.1				
Change Period (Y+Rc), s		6.4			5.1	6.4		5.1				
Max Green Setting (Gmax), s		57.5			27.0	25.4		21.0				
Max Q Clear Time (g_c+I1), s		6.1			11.8	2.0		9.1				
Green Ext Time (p_c), s		2.5			0.2	5.9		0.9				

Intersection Summary	
HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	738	9	27	1027	21	41	2	25	105	4	102
Future Volume (veh/h)	18	738	9	27	1027	21	41	2	25	105	4	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	20	839	9	29	1093	20	55	3	30	109	4	96
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.74	0.74	0.74	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	31	1377	15	569	3636	66	178	20	195	239	9	205
Arrive On Green	0.03	0.77	0.77	0.32	0.71	0.71	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1767	3572	38	1767	5119	94	1279	144	1441	1357	63	1509
Grp Volume(v), veh/h	20	414	434	29	721	392	55	0	33	109	0	100
Grp Sat Flow(s),veh/h/ln	1767	1763	1847	1767	1689	1836	1279	0	1585	1357	0	1572
Q Serve(g_s), s	1.0	9.1	9.1	1.0	7.1	7.1	3.7	0.0	1.7	6.9	0.0	5.3
Cycle Q Clear(g_c), s	1.0	9.1	9.1	1.0	7.1	7.1	9.0	0.0	1.7	8.6	0.0	5.3
Prop In Lane	1.00		0.02	1.00		0.05	1.00		0.91	1.00		0.96
Lane Grp Cap(c), veh/h	31	680	712	569	2398	1304	178	0	215	239	0	213
V/C Ratio(X)	0.65	0.61	0.61	0.05	0.30	0.30	0.31	0.00	0.15	0.46	0.00	0.47
Avail Cap(c_a), veh/h	285	680	712	569	2398	1304	381	0	467	455	0	463
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	0.79	0.79	0.79	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.2	7.4	7.4	21.0	4.8	4.8	40.1	0.0	34.3	38.1	0.0	35.9
Incr Delay (d2), s/veh	7.8	3.8	3.7	0.0	0.3	0.5	0.4	0.0	0.1	0.5	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.8	2.8	0.4	1.9	2.1	1.2	0.0	0.6	2.3	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	11.2	11.0	21.0	5.1	5.3	40.4	0.0	34.5	38.6	0.0	36.5
LnGrp LOS	D	B	B	C	A	A	D	A	C	D	A	D
Approach Vol, veh/h		868			1142			88			209	
Approach Delay, s/veh		12.0			5.5			38.2			37.6	
Approach LOS		B			A			D			D	

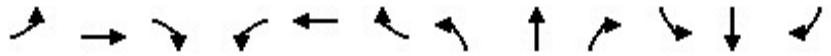
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.3	40.0		15.7	5.1	69.2		15.7				
Change Period (Y+Rc), s	5.3	* 5.3		3.5	3.5	5.3		3.5				
Max Green Setting (Gmax), s	16.5	* 35		26.5	14.5	36.7		26.5				
Max Q Clear Time (g_c+I1), s	3.0	11.1		10.6	3.0	9.1		11.0				
Green Ext Time (p_c), s	0.0	6.3		0.5	0.0	9.5		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



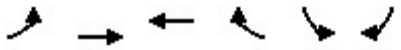
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	685	178	287	966	26	90	36	110	36	278	38
Future Volume (veh/h)	21	685	178	287	966	26	90	36	110	36	278	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	23	753	176	315	1062	26	106	42	116	40	309	38
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.85	0.85	0.85	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	34	912	213	352	1770	43	135	117	322	51	356	44
Arrive On Green	0.02	0.32	0.32	0.20	0.50	0.50	0.08	0.27	0.27	0.03	0.22	0.22
Sat Flow, veh/h	1767	2819	659	1767	3514	86	1767	435	1202	1767	1617	199
Grp Volume(v), veh/h	23	471	458	315	533	555	106	0	158	40	0	347
Grp Sat Flow(s),veh/h/ln	1767	1763	1715	1767	1763	1837	1767	0	1638	1767	0	1816
Q Serve(g_s), s	1.2	23.4	23.4	16.5	20.4	20.4	5.6	0.0	7.4	2.1	0.0	17.5
Cycle Q Clear(g_c), s	1.2	23.4	23.4	16.5	20.4	20.4	5.6	0.0	7.4	2.1	0.0	17.5
Prop In Lane	1.00		0.38	1.00		0.05	1.00		0.73	1.00		0.11
Lane Grp Cap(c), veh/h	34	570	555	352	888	925	135	0	438	51	0	399
V/C Ratio(X)	0.68	0.83	0.83	0.89	0.60	0.60	0.79	0.00	0.36	0.79	0.00	0.87
Avail Cap(c_a), veh/h	372	1669	1623	1115	2411	2513	651	0	763	465	0	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.3	29.7	29.7	37.1	16.8	16.8	43.1	0.0	28.2	45.9	0.0	35.8
Incr Delay (d2), s/veh	8.5	2.3	2.4	3.3	0.5	0.5	3.8	0.0	0.2	9.8	0.0	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	9.7	9.5	7.1	7.6	7.9	2.5	0.0	2.9	1.1	0.0	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.9	32.0	32.1	40.3	17.3	17.3	46.9	0.0	28.4	55.6	0.0	39.0
LnGrp LOS	D	C	C	D	B	B	D	A	C	E	A	D
Approach Vol, veh/h		952			1403			264			387	
Approach Delay, s/veh		32.6			22.4			35.8			40.7	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.4	36.0	10.8	25.8	5.3	53.2	6.2	30.3
Change Period (Y+Rc), s	3.5	5.3	3.5	* 4.9	3.5	5.3	3.5	4.9
Max Green Setting (Gmax), s	8.9	90.0	35.0	* 35	20.0	130.0	25.0	44.3
Max Q Clear Time (g_c+I1), s	18.5	25.4	7.6	19.5	3.2	22.4	4.1	9.4
Green Ext Time (p_c), s	0.4	5.3	0.1	1.2	0.0	6.4	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	29.2
HCM 6th LOS	C

Notes

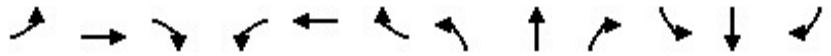
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	843	1230	11	18	11
Future Volume (veh/h)	9	843	1230	11	18	11
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	9	887	1309	11	25	12
Peak Hour Factor	0.95	0.95	0.94	0.94	0.72	0.72
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	16	3086	2964	25	47	42
Arrive On Green	0.01	0.88	1.00	1.00	0.03	0.03
Sat Flow, veh/h	1767	3618	3675	30	1767	1572
Grp Volume(v), veh/h	9	887	644	676	25	12
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1849	1767	1572
Q Serve(g_s), s	0.5	3.8	0.0	0.0	1.3	0.7
Cycle Q Clear(g_c), s	0.5	3.8	0.0	0.0	1.3	0.7
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	16	3086	1459	1530	47	42
V/C Ratio(X)	0.57	0.29	0.44	0.44	0.53	0.28
Avail Cap(c_a), veh/h	285	3086	1459	1530	560	498
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.46	0.46	0.84	0.84	1.00	1.00
Uniform Delay (d), s/veh	44.4	0.9	0.0	0.0	43.2	42.9
Incr Delay (d2), s/veh	5.4	0.1	0.8	0.8	3.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.3	0.3	0.6	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	49.8	1.0	0.8	0.8	46.6	44.3
LnGrp LOS	D	A	A	A	D	D
Approach Vol, veh/h		896	1320		37	
Approach Delay, s/veh		1.5	0.8		45.8	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		84.1		5.9	4.3	79.8
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		52.7		28.5	14.5	34.7
Max Q Clear Time (g_c+I1), s		5.8		3.3	2.5	2.0
Green Ext Time (p_c), s		7.1		0.0	0.0	13.0

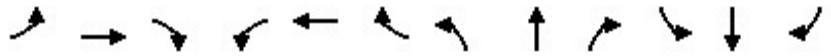
Intersection Summary		
HCM 6th Ctrl Delay		1.8
HCM 6th LOS		A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	663	114	389	1118	39	91	33	214	53	89	14
Future Volume (veh/h)	18	663	114	389	1118	39	91	33	214	53	89	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	20	753	118	423	1215	38	99	36	187	61	102	15
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	31	1452	227	344	2281	71	221	298	247	245	298	251
Arrive On Green	0.03	0.95	0.95	0.19	0.65	0.65	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1767	3042	477	1767	3487	109	1258	1856	1538	1143	1856	1561
Grp Volume(v), veh/h	20	436	435	423	614	639	99	36	187	61	102	15
Grp Sat Flow(s),veh/h/ln	1767	1763	1756	1767	1763	1833	1258	1856	1538	1143	1856	1561
Q Serve(g_s), s	1.0	2.0	2.0	17.5	16.6	16.7	6.8	1.5	10.5	4.3	4.4	0.7
Cycle Q Clear(g_c), s	1.0	2.0	2.0	17.5	16.6	16.7	11.2	1.5	10.5	5.8	4.4	0.7
Prop In Lane	1.00		0.27	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	31	841	838	344	1153	1199	221	298	247	245	298	251
V/C Ratio(X)	0.65	0.52	0.52	1.23	0.53	0.53	0.45	0.12	0.76	0.25	0.34	0.06
Avail Cap(c_a), veh/h	265	841	838	344	1153	1199	481	682	566	481	682	574
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97	0.62	0.62	0.62	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	1.1	1.1	36.3	8.3	8.3	38.5	32.3	36.1	34.8	33.6	32.0
Incr Delay (d2), s/veh	7.9	2.2	2.2	119.1	1.1	1.1	0.5	0.1	1.8	0.2	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.9	0.9	18.4	5.1	5.3	2.1	0.7	3.9	1.2	2.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	3.3	3.3	155.3	9.4	9.3	39.1	32.4	37.9	35.0	33.8	32.1
LnGrp LOS	D	A	A	F	A	A	D	C	D	D	C	C
Approach Vol, veh/h		891			1676			322			178	
Approach Delay, s/veh		4.4			46.2			37.6			34.1	
Approach LOS		A			D			D			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	21.0	49.6		19.4	5.1	65.6		19.4
Change Period (Y+Rc), s	3.5	6.7		4.9	3.5	6.7		4.9
Max Green Setting (Gmax), s	17.5	24.3		33.1	13.5	28.3		33.1
Max Q Clear Time (g_c+I1), s	19.5	4.0		7.8	3.0	18.7		13.2
Green Ext Time (p_c), s	0.0	8.4		0.5	0.0	5.8		0.6

Intersection Summary	
HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	610	203	184	1066	9	163	105	33	12	312	309
Future Volume (veh/h)	123	610	203	184	1066	9	163	105	33	12	312	309
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	143	709	213	214	1240	9	209	135	38	14	376	335
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.78	0.78	0.78	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	1166	350	592	2040	15	260	637	173	41	300	264
Arrive On Green	0.06	0.44	0.44	0.06	0.19	0.19	0.08	0.23	0.23	0.01	0.17	0.17
Sat Flow, veh/h	3428	2662	800	3428	3588	26	3428	2730	742	3428	1772	1562
Grp Volume(v), veh/h	143	469	453	214	609	640	209	85	88	14	374	337
Grp Sat Flow(s),veh/h/ln	1714	1763	1699	1714	1763	1851	1714	1763	1709	1714	1763	1571
Q Serve(g_s), s	5.7	28.6	28.6	8.4	44.4	44.4	8.4	5.5	5.8	0.6	23.7	23.7
Cycle Q Clear(g_c), s	5.7	28.6	28.6	8.4	44.4	44.4	8.4	5.5	5.8	0.6	23.7	23.7
Prop In Lane	1.00		0.47	1.00		0.01	1.00		0.43	1.00		0.99
Lane Grp Cap(c), veh/h	197	772	744	592	1002	1053	260	411	399	41	298	266
V/C Ratio(X)	0.72	0.61	0.61	0.36	0.61	0.61	0.80	0.21	0.22	0.34	1.25	1.27
Avail Cap(c_a), veh/h	575	772	744	592	1002	1053	453	411	399	453	298	266
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.63	0.81	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.9	30.1	30.2	58.6	42.5	42.5	63.7	43.3	43.4	68.6	58.1	58.2
Incr Delay (d2), s/veh	3.2	2.3	2.3	0.3	2.2	2.1	2.2	0.1	0.1	1.8	138.5	146.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	12.2	11.8	3.8	21.5	22.6	3.7	2.4	2.5	0.3	21.9	20.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.1	32.4	32.5	58.9	44.8	44.7	65.9	43.4	43.5	70.4	196.6	204.7
LnGrp LOS	E	C	C	E	D	D	E	D	D	E	F	F
Approach Vol, veh/h		1065			1463			382			725	
Approach Delay, s/veh		37.2			46.8			55.7			198.0	
Approach LOS		D			D			E			F	

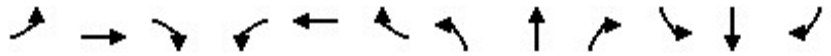
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	67.0	14.1	29.0	11.6	85.3	5.2	37.9
Change Period (Y+Rc), s	5.7	* 5.7	3.5	5.3	3.5	5.7	3.5	5.3
Max Green Setting (Gmax), s	18.5	* 61	18.5	23.7	23.5	56.3	18.5	23.7
Max Q Clear Time (g_c+I1), s	10.4	30.6	10.4	25.7	7.7	46.4	2.6	7.8
Green Ext Time (p_c), s	0.4	6.1	0.2	0.0	0.3	5.2	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	75.1
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	559	58	127	1159	117	60	15	74	47	18	78
Future Volume (veh/h)	26	559	58	127	1159	117	60	15	74	47	18	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	31	673	56	151	1380	110	38	47	61	38	44	73
Peak Hour Factor	0.83	0.83	0.83	0.84	0.84	0.84	0.98	0.98	0.98	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	69	1453	737	1107	2566	1239	110	115	96	124	130	106
Arrive On Green	0.04	0.82	0.82	0.32	0.73	0.73	0.06	0.06	0.06	0.07	0.07	0.07
Sat Flow, veh/h	3428	3526	1551	3428	3526	1552	1767	1856	1542	1767	1856	1522
Grp Volume(v), veh/h	31	673	56	151	1380	110	38	47	61	38	44	73
Grp Sat Flow(s),veh/h/ln	1714	1763	1551	1714	1763	1552	1767	1856	1542	1767	1856	1522
Q Serve(g_s), s	1.2	7.6	0.9	4.4	24.5	2.2	2.9	3.4	5.4	2.9	3.2	6.6
Cycle Q Clear(g_c), s	1.2	7.6	0.9	4.4	24.5	2.2	2.9	3.4	5.4	2.9	3.2	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	69	1453	737	1107	2566	1239	110	115	96	124	130	106
V/C Ratio(X)	0.45	0.46	0.08	0.14	0.54	0.09	0.35	0.41	0.64	0.31	0.34	0.69
Avail Cap(c_a), veh/h	478	1453	737	1107	2566	1239	278	292	242	278	292	239
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74	0.74	0.74	0.32	0.32	0.32	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.4	7.9	5.8	33.6	8.5	3.1	62.9	63.2	64.1	61.9	62.0	63.6
Incr Delay (d2), s/veh	1.3	0.8	0.1	0.0	0.3	0.0	0.7	0.9	2.6	0.5	0.6	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.2	0.4	1.8	8.1	0.8	1.3	1.6	2.2	1.3	1.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.7	8.7	6.0	33.6	8.8	3.1	63.6	64.0	66.7	62.4	62.6	66.5
LnGrp LOS	E	A	A	C	A	A	E	E	E	E	E	E
Approach Vol, veh/h		760			1641			146			155	
Approach Delay, s/veh		10.9			10.7			65.0			64.4	
Approach LOS		B			B			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.5	63.0		13.8	6.3	107.2		12.7
Change Period (Y+Rc), s	5.3	* 5.3		4.0	3.5	5.3		4.0
Max Green Setting (Gmax), s	21.5	* 58		22.0	19.5	59.7		22.0
Max Q Clear Time (g_c+I1), s	6.4	9.6		8.6	3.2	26.5		7.4
Green Ext Time (p_c), s	0.2	10.5		0.2	0.0	22.3		0.2

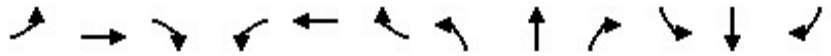
Intersection Summary	
HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	422	100	983	1146	111	67	577	414	100	1585	132
Future Volume (veh/h)	105	422	100	983	1146	111	67	577	414	100	1585	132
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	113	454	86	1080	1259	111	80	687	394	106	1686	126
Peak Hour Factor	0.93	0.93	0.93	0.91	0.91	0.91	0.84	0.84	0.84	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	542	1597	487	451	1301	115	234	1781	750	155	1936	145
Arrive On Green	0.05	0.10	0.10	0.13	0.28	0.28	0.07	0.35	0.35	0.05	0.32	0.32
Sat Flow, veh/h	3428	5066	1545	3428	4731	417	3428	5066	1546	3428	6103	456
Grp Volume(v), veh/h	113	454	86	1080	899	471	80	687	394	106	1322	490
Grp Sat Flow(s),veh/h/ln	1714	1689	1545	1714	1689	1771	1714	1689	1546	1714	1596	1772
Q Serve(g_s), s	4.4	11.6	5.5	18.4	36.8	36.8	3.1	14.2	24.8	4.3	36.5	36.5
Cycle Q Clear(g_c), s	4.4	11.6	5.5	18.4	36.8	36.8	3.1	14.2	24.8	4.3	36.5	36.5
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	542	1597	487	451	929	487	234	1781	750	155	1518	562
V/C Ratio(X)	0.21	0.28	0.18	2.40	0.97	0.97	0.34	0.39	0.53	0.68	0.87	0.87
Avail Cap(c_a), veh/h	542	1597	487	451	929	487	316	1781	750	1014	1566	580
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.0	48.1	27.2	60.8	50.1	50.1	62.2	34.0	25.1	65.9	45.1	45.1
Incr Delay (d2), s/veh	0.1	0.4	0.8	635.4	22.7	33.5	1.0	0.2	0.8	2.0	5.6	13.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	5.2	2.8	47.5	17.9	20.2	1.4	5.8	8.8	1.9	14.8	17.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	48.6	27.9	696.2	72.8	83.6	63.3	34.2	25.9	67.8	50.7	58.6
LnGrp LOS	E	D	C	F	E	F	E	C	C	E	D	E
Approach Vol, veh/h		653			2450			1161			1918	
Approach Delay, s/veh		47.5			349.7			33.4			53.7	
Approach LOS		D			F			C			D	

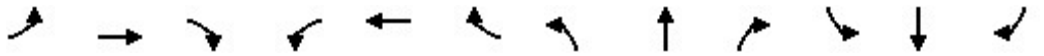
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	55.4	23.0	50.6	15.8	50.6	28.6	45.0
Change Period (Y+Rc), s	4.6	6.2	4.6	6.5	6.2	* 6.2	6.5	* 6.5
Max Green Setting (Gmax), s	4.4	17.8	18.4	40.5	12.9	* 46	20.4	* 39
Max Q Clear Time (g_c+I1), s	6.4	26.8	20.4	13.6	5.1	38.5	6.4	38.8
Green Ext Time (p_c), s	0.2	0.0	0.0	3.8	0.1	5.9	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	166.5
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



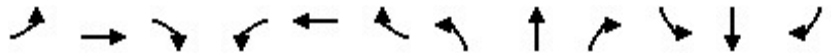
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	653	178	304	593	0	0	0	0	287	4	138
Future Volume (veh/h)	0	653	178	304	593	0	0	0	0	287	4	138
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	680	148	323	631	0				296	0	112
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94				0.98	0.98	0.98
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	1054	462	646	2153	0				505	0	225
Arrive On Green	0.00	0.30	0.30	0.19	0.61	0.00				0.14	0.00	0.14
Sat Flow, veh/h	0	3618	1545	3428	3618	0				3534	0	1572
Grp Volume(v), veh/h	0	680	148	323	631	0				296	0	112
Grp Sat Flow(s),veh/h/ln	0	1763	1545	1714	1763	0				1767	0	1572
Q Serve(g_s), s	0.0	6.9	3.1	3.5	3.5	0.0				3.2	0.0	2.7
Cycle Q Clear(g_c), s	0.0	6.9	3.1	3.5	3.5	0.0				3.2	0.0	2.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1054	462	646	2153	0				505	0	225
V/C Ratio(X)	0.00	0.65	0.32	0.50	0.29	0.00				0.59	0.00	0.50
Avail Cap(c_a), veh/h	0	2555	1120	2071	5119	0				2135	0	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.6	11.2	15.0	3.8	0.0				16.6	0.0	16.4
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.2	0.0	0.0				0.4	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.2	0.9	1.2	0.6	0.0				1.2	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.9	11.4	15.3	3.8	0.0				17.0	0.0	17.0
LnGrp LOS	A	B	B	B	A	A				B	A	B
Approach Vol, veh/h		828			954						408	
Approach Delay, s/veh		12.6			7.7						17.0	
Approach LOS		B			A						B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	12.9	17.5		11.0		30.4
Change Period (Y+Rc), s	5.1	5.1		5.1		5.1
Max Green Setting (Gmax), s	25.0	30.0		25.0		60.1
Max Q Clear Time (g_c+I1), s	5.5	8.9		5.2		5.5
Green Ext Time (p_c), s	0.6	3.4		0.7		3.2

Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

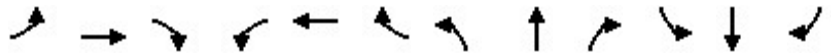


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	772	0	0	759	388	194	99	451	0	0	0
Future Volume (veh/h)	134	772	0	0	759	388	194	99	451	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	161	930	0	0	791	363	164	186	406			
Peak Hour Factor	0.83	0.83	0.83	0.96	0.96	0.96	0.89	0.89	0.89			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	196	2495	0	0	1823	824	291	305	517			
Arrive On Green	0.11	0.71	0.00	0.00	0.54	0.54	0.16	0.16	0.16			
Sat Flow, veh/h	1767	3618	0	0	3544	1527	1767	1856	3145			
Grp Volume(v), veh/h	161	930	0	0	791	363	164	186	406			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1689	1527	1767	1856	1572			
Q Serve(g_s), s	8.0	9.4	0.0	0.0	12.7	12.9	7.7	8.4	11.1			
Cycle Q Clear(g_c), s	8.0	9.4	0.0	0.0	12.7	12.9	7.7	8.4	11.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	196	2495	0	0	1823	824	291	305	517			
V/C Ratio(X)	0.82	0.37	0.00	0.00	0.43	0.44	0.56	0.61	0.78			
Avail Cap(c_a), veh/h	432	2495	0	0	1823	824	511	536	909			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.77	0.77	0.00	0.00	0.96	0.96	1.00	1.00	1.00			
Uniform Delay (d), s/veh	39.1	5.2	0.0	0.0	12.4	12.5	34.6	34.9	36.1			
Incr Delay (d2), s/veh	2.5	0.3	0.0	0.0	0.7	1.6	0.6	0.7	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.6	2.9	0.0	0.0	4.4	4.3	3.3	3.8	4.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	5.6	0.0	0.0	13.2	14.1	35.3	35.6	37.1			
LnGrp LOS	D	A	A	A	B	B	D	D	D			
Approach Vol, veh/h		1091			1154			756				
Approach Delay, s/veh		10.9			13.5			36.3				
Approach LOS		B			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		70.1			15.1	55.0		19.9				
Change Period (Y+Rc), s		6.4			5.1	6.4		5.1				
Max Green Setting (Gmax), s		52.5			22.0	25.4		26.0				
Max Q Clear Time (g_c+I1), s		11.4			10.0	14.9		13.1				
Green Ext Time (p_c), s		5.2			0.2	3.9		1.7				

Intersection Summary	
HCM 6th Ctrl Delay	18.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	1163	24	55	1092	29	20	2	16	53	0	45
Future Volume (veh/h)	29	1163	24	55	1092	29	20	2	16	53	0	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	30	1187	22	59	1162	28	32	3	22	58	0	44
Peak Hour Factor	0.98	0.98	0.98	0.94	0.94	0.94	0.63	0.63	0.63	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	38	1672	31	583	4049	98	131	15	111	149	0	123
Arrive On Green	0.02	0.47	0.47	0.66	1.00	1.00	0.08	0.08	0.08	0.08	0.00	0.08
Sat Flow, veh/h	1767	3539	66	1767	5084	122	1348	189	1386	1370	0	1543
Grp Volume(v), veh/h	30	591	618	59	772	418	32	0	25	58	0	44
Grp Sat Flow(s),veh/h/ln	1767	1763	1842	1767	1689	1830	1348	0	1575	1370	0	1543
Q Serve(g_s), s	2.0	31.9	32.0	1.5	0.0	0.0	2.8	0.0	1.8	5.0	0.0	3.2
Cycle Q Clear(g_c), s	2.0	31.9	32.0	1.5	0.0	0.0	6.0	0.0	1.8	6.7	0.0	3.2
Prop In Lane	1.00		0.04	1.00		0.07	1.00		0.88	1.00		1.00
Lane Grp Cap(c), veh/h	38	833	870	583	2689	1457	131	0	126	149	0	123
V/C Ratio(X)	0.80	0.71	0.71	0.10	0.29	0.29	0.24	0.00	0.20	0.39	0.00	0.36
Avail Cap(c_a), veh/h	272	833	870	583	2689	1457	355	0	387	377	0	379
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	0.71	0.71	0.71	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.5	25.1	25.1	13.9	0.0	0.0	55.1	0.0	51.6	54.8	0.0	52.3
Incr Delay (d2), s/veh	11.4	4.3	4.2	0.0	0.2	0.4	0.4	0.0	0.3	0.6	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	13.6	14.2	0.6	0.1	0.1	1.0	0.0	0.7	1.8	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.9	29.5	29.3	13.9	0.2	0.4	55.5	0.0	51.9	55.4	0.0	52.9
LnGrp LOS	E	C	C	B	A	A	E	A	D	E	A	D
Approach Vol, veh/h		1239			1249			57			102	
Approach Delay, s/veh		30.4			0.9			53.9			54.3	
Approach LOS		C			A			D			D	

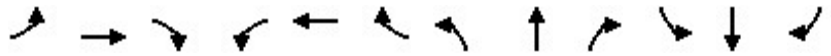
Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	44.9	62.0		13.1	6.1	100.9		13.1
Change Period (Y+Rc), s	5.3	* 5.3		3.5	3.5	5.3		3.5
Max Green Setting (Gmax), s	21.5	* 57		29.5	18.5	59.7		29.5
Max Q Clear Time (g_c+I1), s	3.5	34.0		8.7	4.0	2.0		8.0
Green Ext Time (p_c), s	0.0	9.8		0.2	0.0	12.5		0.1

Intersection Summary	
HCM 6th Ctrl Delay	17.9
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



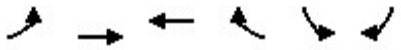
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	1114	97	145	991	31	136	122	187	26	59	32
Future Volume (veh/h)	45	1114	97	145	991	31	136	122	187	26	59	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	47	1160	91	159	1089	31	166	149	205	34	77	38
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.82	0.82	0.82	0.77	0.77	0.77
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	458	1651	129	188	1157	33	278	161	221	43	104	51
Arrive On Green	0.52	1.00	1.00	0.04	0.11	0.11	0.16	0.23	0.23	0.02	0.09	0.09
Sat Flow, veh/h	1767	3311	259	1767	3498	100	1767	707	972	1767	1171	578
Grp Volume(v), veh/h	47	617	634	159	549	571	166	0	354	34	0	115
Grp Sat Flow(s),veh/h/ln	1767	1763	1808	1767	1763	1835	1767	0	1679	1767	0	1749
Q Serve(g_s), s	1.6	0.4	0.4	10.7	37.1	37.1	10.5	0.0	24.8	2.3	0.0	7.7
Cycle Q Clear(g_c), s	1.6	0.4	0.4	10.7	37.1	37.1	10.5	0.0	24.8	2.3	0.0	7.7
Prop In Lane	1.00		0.14	1.00		0.05	1.00		0.58	1.00		0.33
Lane Grp Cap(c), veh/h	458	879	902	188	583	607	278	0	381	43	0	155
V/C Ratio(X)	0.10	0.70	0.70	0.84	0.94	0.94	0.60	0.00	0.93	0.79	0.00	0.74
Avail Cap(c_a), veh/h	458	879	902	302	583	607	278	0	421	243	0	449
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	0.92	0.92	0.92	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.8	0.1	0.1	56.9	52.3	52.3	47.0	0.0	45.4	58.2	0.0	53.4
Incr Delay (d2), s/veh	0.0	4.0	3.9	5.7	23.8	23.2	2.5	0.0	24.5	11.2	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.0	1.0	5.3	21.3	22.1	4.8	0.0	12.8	1.2	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8	4.1	4.0	62.6	76.1	75.5	49.5	0.0	69.9	69.5	0.0	56.0
LnGrp LOS	C	A	A	E	E	E	D	A	E	E	A	E
Approach Vol, veh/h		1298			1279			520			149	
Approach Delay, s/veh		4.7			74.2			63.4			59.1	
Approach LOS		A			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.3	65.1	23.8	14.8	36.4	45.0	6.4	32.2
Change Period (Y+Rc), s	3.5	5.3	* 4.9	* 4.2	5.3	* 5.3	3.5	4.9
Max Green Setting (Gmax), s	20.5	35.7	* 17	* 31	16.5	* 40	16.5	30.1
Max Q Clear Time (g_c+I1), s	12.7	2.4	12.5	9.7	3.6	39.1	4.3	26.8
Green Ext Time (p_c), s	0.1	7.7	0.1	0.4	0.0	0.4	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	44.0
HCM 6th LOS	D

Notes

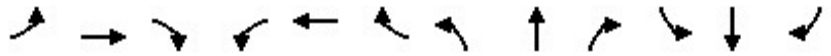
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	1303	1133	15	9	15
Future Volume (veh/h)	35	1303	1133	15	9	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	36	1357	1180	14	13	16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.67	0.67
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	46	3194	3035	36	37	32
Arrive On Green	0.03	1.00	1.00	1.00	0.02	0.02
Sat Flow, veh/h	1767	3618	3660	42	1767	1572
Grp Volume(v), veh/h	36	1357	583	611	13	16
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1847	1767	1572
Q Serve(g_s), s	2.4	0.0	0.0	0.0	0.9	1.2
Cycle Q Clear(g_c), s	2.4	0.0	0.0	0.0	0.9	1.2
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	46	3194	1500	1571	37	32
V/C Ratio(X)	0.79	0.42	0.39	0.39	0.36	0.49
Avail Cap(c_a), veh/h	361	3194	1500	1571	538	478
HCM Platoon Ratio	1.33	1.33	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.55	0.55	0.88	0.88	1.00	1.00
Uniform Delay (d), s/veh	57.6	0.0	0.0	0.0	58.0	58.1
Incr Delay (d2), s/veh	6.0	0.2	0.7	0.6	2.2	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.1	0.3	0.3	0.4	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	63.6	0.2	0.7	0.6	60.1	62.4
LnGrp LOS	E	A	A	A	E	E
Approach Vol, veh/h		1393	1194		29	
Approach Delay, s/veh		1.9	0.7		61.4	
Approach LOS		A	A		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		114.0		6.0	6.6	107.4
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		74.7		36.5	24.5	46.7
Max Q Clear Time (g_c+I1), s		2.0		3.2	4.4	2.0
Green Ext Time (p_c), s		14.4		0.0	0.0	12.2

Intersection Summary		
HCM 6th Ctrl Delay		2.0
HCM 6th LOS		A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	1210	82	189	1052	53	91	69	325	78	52	35
Future Volume (veh/h)	17	1210	82	189	1052	53	91	69	325	78	52	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	18	1274	78	208	1156	53	107	81	306	87	58	31
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.85	0.85	0.85	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	27	1302	80	435	2207	101	305	400	336	237	400	336
Arrive On Green	0.03	0.77	0.77	0.25	0.64	0.64	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1767	3375	206	1767	3429	157	1290	1856	1562	985	1856	1562
Grp Volume(v), veh/h	18	665	687	208	594	615	107	81	306	87	58	31
Grp Sat Flow(s),veh/h/ln	1767	1763	1818	1767	1763	1823	1290	1856	1562	985	1856	1562
Q Serve(g_s), s	1.2	42.0	42.5	12.1	21.7	21.8	8.8	4.3	22.9	9.5	3.0	1.9
Cycle Q Clear(g_c), s	1.2	42.0	42.5	12.1	21.7	21.8	11.8	4.3	22.9	13.8	3.0	1.9
Prop In Lane	1.00		0.11	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	27	680	701	435	1135	1174	305	400	336	237	400	336
V/C Ratio(X)	0.68	0.98	0.98	0.48	0.52	0.52	0.35	0.20	0.91	0.37	0.15	0.09
Avail Cap(c_a), veh/h	243	680	701	435	1135	1174	405	543	457	313	543	457
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	0.78	0.78	0.78	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.9	13.2	13.3	38.6	11.5	11.5	42.9	38.6	45.9	44.3	38.1	37.7
Incr Delay (d2), s/veh	9.7	27.8	27.9	0.2	1.4	1.3	0.3	0.1	15.4	0.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	10.2	10.5	5.1	7.9	8.1	2.8	2.0	10.2	2.3	1.4	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.6	41.0	41.2	38.9	12.8	12.8	43.2	38.7	61.3	44.7	38.2	37.7
LnGrp LOS	E	D	D	D	B	B	D	D	E	D	D	D
Approach Vol, veh/h		1370			1417			494			176	
Approach Delay, s/veh		41.4			16.6			53.7			41.3	
Approach LOS		D			B			D			D	

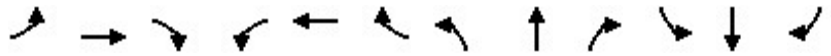
Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	36.3	53.0		30.7	5.3	83.9		30.7
Change Period (Y+Rc), s	6.7	* 6.7		4.9	3.5	6.7		4.9
Max Green Setting (Gmax), s	23.5	* 46		35.1	16.5	53.3		35.1
Max Q Clear Time (g_c+I1), s	14.1	44.5		15.8	3.2	23.8		24.9
Green Ext Time (p_c), s	0.2	1.5		0.4	0.0	10.6		0.8

Intersection Summary	
HCM 6th Ctrl Delay	33.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	285	1063	220	61	774	120	284	170	53	60	124	233
Future Volume (veh/h)	285	1063	220	61	774	120	284	170	53	60	124	233
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	310	1155	215	64	806	113	338	202	57	67	139	236
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.84	0.84	0.84	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	368	960	178	900	1535	215	393	650	179	109	273	243
Arrive On Green	0.11	0.32	0.32	0.53	0.99	0.99	0.11	0.24	0.24	0.03	0.16	0.16
Sat Flow, veh/h	3428	2968	550	3428	3104	435	3428	2731	751	3428	1763	1569
Grp Volume(v), veh/h	310	683	687	64	458	461	338	129	130	67	139	236
Grp Sat Flow(s),veh/h/ln	1714	1763	1755	1714	1763	1776	1714	1763	1719	1714	1763	1569
Q Serve(g_s), s	12.4	45.3	45.3	1.3	0.8	0.8	13.6	8.4	8.8	2.7	10.1	20.9
Cycle Q Clear(g_c), s	12.4	45.3	45.3	1.3	0.8	0.8	13.6	8.4	8.8	2.7	10.1	20.9
Prop In Lane	1.00		0.31	1.00		0.24	1.00		0.44	1.00		1.00
Lane Grp Cap(c), veh/h	368	570	568	900	872	878	393	419	409	109	273	243
V/C Ratio(X)	0.84	1.20	1.21	0.07	0.53	0.53	0.86	0.31	0.32	0.62	0.51	0.97
Avail Cap(c_a), veh/h	526	570	568	900	872	878	649	419	409	796	273	243
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.63	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	47.3	47.4	24.8	0.4	0.4	60.9	43.9	44.0	66.9	54.3	58.8
Incr Delay (d2), s/veh	5.4	99.9	104.5	0.0	2.1	2.1	3.2	0.2	0.2	2.1	0.7	48.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	35.0	35.6	0.5	0.7	0.7	6.0	3.7	3.7	1.2	4.5	11.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.8	147.3	151.9	24.9	2.5	2.5	64.1	44.0	44.2	69.0	54.9	107.8
LnGrp LOS	E	F	F	C	A	A	E	D	D	E	D	F
Approach Vol, veh/h		1680			983			597			442	
Approach Delay, s/veh		134.3			3.9			55.4			85.3	
Approach LOS		F			A			E			F	

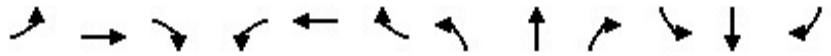
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	51.0	19.5	27.0	18.5	74.9	7.9	38.6
Change Period (Y+Rc), s	5.7	* 5.7	3.5	5.3	3.5	5.7	3.5	5.3
Max Green Setting (Gmax), s	28.5	* 45	26.5	21.7	21.5	52.3	32.5	15.7
Max Q Clear Time (g_c+I1), s	13.3	47.3	15.6	22.9	14.4	2.8	4.7	10.8
Green Ext Time (p_c), s	0.2	0.0	0.5	0.0	0.6	6.3	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	81.1
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	892	210	167	646	174	217	59	262	135	64	86
Future Volume (veh/h)	66	892	210	167	646	174	217	59	262	135	64	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	69	939	177	180	695	156	140	173	214	113	129	78
Peak Hour Factor	0.95	0.95	0.95	0.93	0.93	0.93	0.98	0.98	0.98	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	110	874	644	1242	2084	1064	287	302	253	167	175	146
Arrive On Green	0.06	0.50	0.50	0.72	1.00	1.00	0.16	0.16	0.16	0.09	0.09	0.09
Sat Flow, veh/h	3428	3526	1565	3428	3526	1549	1767	1856	1558	1767	1856	1547
Grp Volume(v), veh/h	69	939	177	180	695	156	140	173	214	113	129	78
Grp Sat Flow(s),veh/h/ln	1714	1763	1565	1714	1763	1549	1767	1856	1558	1767	1856	1547
Q Serve(g_s), s	2.7	34.7	8.1	2.3	0.0	0.0	10.1	12.1	18.7	8.7	9.5	6.7
Cycle Q Clear(g_c), s	2.7	34.7	8.1	2.3	0.0	0.0	10.1	12.1	18.7	8.7	9.5	6.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	874	644	1242	2084	1064	287	302	253	167	175	146
V/C Ratio(X)	0.63	1.07	0.28	0.14	0.33	0.15	0.49	0.57	0.84	0.68	0.74	0.53
Avail Cap(c_a), veh/h	478	874	644	1242	2084	1064	417	437	367	303	318	265
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.47	0.47	0.47	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.7	35.3	17.9	12.6	0.0	0.0	53.3	54.1	56.9	61.3	61.7	60.5
Incr Delay (d2), s/veh	1.0	44.2	0.5	0.0	0.4	0.3	0.5	0.6	8.0	1.8	2.3	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	16.2	3.4	0.8	0.1	0.1	4.5	5.7	7.9	4.0	4.6	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.7	79.5	18.4	12.6	0.4	0.3	53.8	54.8	64.9	63.1	64.0	61.6
LnGrp LOS	E	F	B	B	A	A	D	D	E	E	E	E
Approach Vol, veh/h		1185			1031			527			320	
Approach Delay, s/veh		69.5			2.5			58.6			63.1	
Approach LOS		E			A			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	56.0	40.0		17.2	8.0	88.0		26.8
Change Period (Y+Rc), s	5.3	* 5.3		4.0	3.5	5.3		4.0
Max Green Setting (Gmax), s	31.5	* 35		24.0	19.5	46.7		33.0
Max Q Clear Time (g_c+I1), s	14.3	36.7		11.5	4.7	2.0		20.7
Green Ext Time (p_c), s	0.3	0.0		0.6	0.1	12.0		1.0

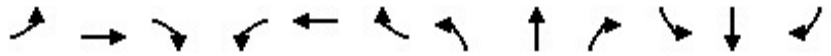
Intersection Summary	
HCM 6th Ctrl Delay	44.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	895	144	502	652	140	166	1415	968	157	849	159
Future Volume (veh/h)	230	895	144	502	652	140	166	1415	968	157	849	159
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	256	994	128	518	672	130	182	1555	851	176	954	143
Peak Hour Factor	0.90	0.90	0.90	0.97	0.97	0.97	0.91	0.91	0.91	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	308	1140	352	1037	1926	368	245	1114	820	244	1286	190
Arrive On Green	0.06	0.15	0.15	0.30	0.45	0.45	0.07	0.22	0.22	0.07	0.23	0.23
Sat Flow, veh/h	3428	5066	1566	3428	4269	815	3428	5066	1564	3428	5652	836
Grp Volume(v), veh/h	256	994	128	518	530	272	182	1555	851	176	806	291
Grp Sat Flow(s),veh/h/ln	1714	1689	1566	1714	1689	1707	1714	1689	1564	1714	1596	1700
Q Serve(g_s), s	10.3	26.9	8.2	17.4	14.3	14.6	7.3	30.8	30.8	7.0	21.9	22.3
Cycle Q Clear(g_c), s	10.3	26.9	8.2	17.4	14.3	14.6	7.3	30.8	30.8	7.0	21.9	22.3
Prop In Lane	1.00		1.00	1.00		0.48	1.00		1.00	1.00		0.49
Lane Grp Cap(c), veh/h	308	1140	352	1037	1524	770	245	1114	820	244	1090	387
V/C Ratio(X)	0.83	0.87	0.36	0.50	0.35	0.35	0.74	1.40	1.04	0.72	0.74	0.75
Avail Cap(c_a), veh/h	451	1140	352	1037	1524	770	536	1114	820	793	1395	495
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.70	0.70	0.70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.7	57.5	32.4	40.1	25.0	25.1	63.7	54.6	33.4	63.7	50.2	50.4
Incr Delay (d2), s/veh	3.9	6.7	2.0	0.1	0.6	1.3	5.3	183.4	41.8	1.5	1.7	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	12.4	3.3	7.1	5.6	6.0	3.3	31.7	16.4	3.1	8.7	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.7	64.2	34.4	40.3	25.6	26.4	69.1	238.0	75.1	65.2	52.0	55.6
LnGrp LOS	E	E	C	D	C	C	E	F	F	E	D	E
Approach Vol, veh/h		1378			1320			2588			1273	
Approach Delay, s/veh		62.3			31.5			172.6			54.6	
Approach LOS		E			C			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.2	37.0	48.8	38.0	15.1	38.1	17.2	69.7
Change Period (Y+Rc), s	6.2	* 6.2	6.5	* 6.5	5.1	6.2	4.6	6.5
Max Green Setting (Gmax), s	32.4	* 31	23.4	* 32	21.9	40.8	18.4	36.5
Max Q Clear Time (g_c+I1), s	19.3	32.8	19.4	28.9	9.3	24.3	12.3	16.6
Green Ext Time (p_c), s	0.3	0.0	0.5	1.8	0.5	7.3	0.2	5.5

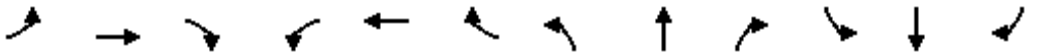
Intersection Summary	
HCM 6th Ctrl Delay	98.1
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Appendix F
Peak Hour Intersection Capacity Worksheets
Existing with Project Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	538	214	523	520	0	0	0	0	103	4	86
Future Volume (veh/h)	0	538	214	523	520	0	0	0	0	103	4	86
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	611	195	545	542	0				111	0	73
Peak Hour Factor	0.88	0.88	0.88	0.96	0.96	0.96				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	1016	443	757	2244	0				384	0	171
Arrive On Green	0.00	0.29	0.29	0.22	0.64	0.00				0.11	0.00	0.11
Sat Flow, veh/h	0	3618	1539	3428	3618	0				3534	0	1572
Grp Volume(v), veh/h	0	611	195	545	542	0				111	0	73
Grp Sat Flow(s),veh/h/ln	0	1763	1539	1714	1763	0				1767	0	1572
Q Serve(g_s), s	0.0	6.0	4.1	5.9	2.6	0.0				1.2	0.0	1.7
Cycle Q Clear(g_c), s	0.0	6.0	4.1	5.9	2.6	0.0				1.2	0.0	1.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1016	443	757	2244	0				384	0	171
V/C Ratio(X)	0.00	0.60	0.44	0.72	0.24	0.00				0.29	0.00	0.43
Avail Cap(c_a), veh/h	0	3524	1538	2142	6175	0				2208	0	982
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.3	11.6	14.4	3.1	0.0				16.4	0.0	16.7
Incr Delay (d2), s/veh	0.0	0.2	0.3	0.5	0.0	0.0				0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.9	1.2	1.8	0.2	0.0				0.4	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.5	11.9	14.9	3.1	0.0				16.6	0.0	17.3
LnGrp LOS	A	B	B	B	A	A				B	A	B
Approach Vol, veh/h		806			1087						184	
Approach Delay, s/veh		12.3			9.1						16.9	
Approach LOS		B			A						B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	13.9	16.6		9.5		30.6						
Change Period (Y+Rc), s	5.1	5.1		5.1		5.1						
Max Green Setting (Gmax), s	25.0	40.0		25.0		70.1						
Max Q Clear Time (g_c+I1), s	7.9	8.0		3.7		4.6						
Green Ext Time (p_c), s	1.0	3.3		0.3		2.4						

Intersection Summary												
HCM 6th Ctrl Delay			11.0									
HCM 6th LOS			B									

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	481	0	0	897	328	132	31	284	0	0	0
Future Volume (veh/h)	168	481	0	0	897	328	132	31	284	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	198	566	0	0	986	326	92	115	259			
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.88	0.88	0.88			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	235	2679	0	0	2133	704	198	208	353			
Arrive On Green	0.13	0.76	0.00	0.00	1.00	1.00	0.11	0.11	0.11			
Sat Flow, veh/h	1767	3618	0	0	3908	1235	1767	1856	3145			
Grp Volume(v), veh/h	198	566	0	0	890	422	92	115	259			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1689	1599	1767	1856	1572			
Q Serve(g_s), s	9.8	4.1	0.0	0.0	0.0	0.0	4.4	5.3	7.2			
Cycle Q Clear(g_c), s	9.8	4.1	0.0	0.0	0.0	0.0	4.4	5.3	7.2			
Prop In Lane	1.00		0.00	0.00		0.77	1.00		1.00			
Lane Grp Cap(c), veh/h	235	2679	0	0	1925	912	198	208	353			
V/C Ratio(X)	0.84	0.21	0.00	0.00	0.46	0.46	0.46	0.55	0.73			
Avail Cap(c_a), veh/h	530	2679	0	0	1925	912	412	433	734			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.85	0.85	0.00	0.00	0.95	0.95	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.1	3.1	0.0	0.0	0.0	0.0	37.4	37.8	38.6			
Incr Delay (d2), s/veh	2.7	0.2	0.0	0.0	0.8	1.6	0.6	0.8	1.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.3	1.0	0.0	0.0	0.2	0.4	1.9	2.4	2.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.8	3.2	0.0	0.0	0.8	1.6	38.0	38.7	39.8			
LnGrp LOS	D	A	A	A	A	A	D	D	D			
Approach Vol, veh/h		764			1312			466				
Approach Delay, s/veh		13.0			1.0			39.1				
Approach LOS		B			A			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		74.8			17.1	57.7		15.2				
Change Period (Y+Rc), s		6.4			5.1	6.4		5.1				
Max Green Setting (Gmax), s		57.5			27.0	25.4		21.0				
Max Q Clear Time (g_c+I1), s		6.1			11.8	2.0		9.2				
Green Ext Time (p_c), s		2.5			0.2	6.2		0.9				

Intersection Summary	
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	743	9	27	1065	22	41	2	25	105	4	102
Future Volume (veh/h)	18	743	9	27	1065	22	41	2	25	105	4	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	20	844	9	29	1133	21	55	3	30	109	4	96
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.74	0.74	0.74	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	31	1377	15	569	3635	67	178	20	195	239	9	205
Arrive On Green	0.03	0.77	0.77	0.32	0.71	0.71	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1767	3572	38	1767	5118	95	1279	144	1441	1357	63	1509
Grp Volume(v), veh/h	20	416	437	29	748	406	55	0	33	109	0	100
Grp Sat Flow(s),veh/h/ln	1767	1763	1847	1767	1689	1836	1279	0	1585	1357	0	1572
Q Serve(g_s), s	1.0	9.2	9.2	1.0	7.4	7.4	3.7	0.0	1.7	6.9	0.0	5.3
Cycle Q Clear(g_c), s	1.0	9.2	9.2	1.0	7.4	7.4	9.0	0.0	1.7	8.6	0.0	5.3
Prop In Lane	1.00		0.02	1.00		0.05	1.00		0.91	1.00		0.96
Lane Grp Cap(c), veh/h	31	680	712	569	2398	1304	178	0	215	239	0	213
V/C Ratio(X)	0.65	0.61	0.61	0.05	0.31	0.31	0.31	0.00	0.15	0.46	0.00	0.47
Avail Cap(c_a), veh/h	285	680	712	569	2398	1304	381	0	467	455	0	463
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	0.77	0.77	0.77	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.2	7.4	7.4	21.0	4.9	4.9	40.1	0.0	34.3	38.1	0.0	35.9
Incr Delay (d2), s/veh	7.8	3.9	3.7	0.0	0.3	0.5	0.4	0.0	0.1	0.5	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.8	2.9	0.4	2.0	2.2	1.2	0.0	0.6	2.3	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	11.3	11.1	21.0	5.1	5.3	40.4	0.0	34.5	38.6	0.0	36.5
LnGrp LOS	D	B	B	C	A	A	D	A	C	D	A	D
Approach Vol, veh/h		873			1183			88			209	
Approach Delay, s/veh		12.1			5.6			38.2			37.6	
Approach LOS		B			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.3	40.0		15.7	5.1	69.2		15.7				
Change Period (Y+Rc), s	5.3	* 5.3		3.5	3.5	5.3		3.5				
Max Green Setting (Gmax), s	16.5	* 35		26.5	14.5	36.7		26.5				
Max Q Clear Time (g_c+I1), s	3.0	11.2		10.6	3.0	9.4		11.0				
Green Ext Time (p_c), s	0.0	6.4		0.5	0.0	9.9		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		12.1
HCM 6th LOS		B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



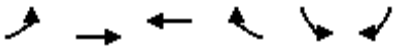
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	690	178	296	1005	28	90	36	112	36	278	38
Future Volume (veh/h)	21	690	178	296	1005	28	90	36	112	36	278	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	23	758	176	325	1104	28	106	42	119	40	309	38
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.85	0.85	0.85	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	34	914	212	361	1787	45	135	114	322	51	354	44
Arrive On Green	0.02	0.32	0.32	0.20	0.51	0.51	0.08	0.27	0.27	0.03	0.22	0.22
Sat Flow, veh/h	1767	2823	655	1767	3511	89	1767	427	1209	1767	1617	199
Grp Volume(v), veh/h	23	473	461	325	554	578	106	0	161	40	0	347
Grp Sat Flow(s),veh/h/ln	1767	1763	1715	1767	1763	1837	1767	0	1636	1767	0	1816
Q Serve(g_s), s	1.3	24.2	24.2	17.5	21.9	21.9	5.7	0.0	7.8	2.2	0.0	18.0
Cycle Q Clear(g_c), s	1.3	24.2	24.2	17.5	21.9	21.9	5.7	0.0	7.8	2.2	0.0	18.0
Prop In Lane	1.00		0.38	1.00		0.05	1.00		0.74	1.00		0.11
Lane Grp Cap(c), veh/h	34	571	555	361	897	935	135	0	436	51	0	398
V/C Ratio(X)	0.68	0.83	0.83	0.90	0.62	0.62	0.79	0.00	0.37	0.79	0.00	0.87
Avail Cap(c_a), veh/h	363	1629	1585	1089	2353	2452	635	0	744	454	0	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.5	30.5	30.5	37.8	17.1	17.1	44.2	0.0	29.1	47.0	0.0	36.7
Incr Delay (d2), s/veh	8.7	2.4	2.5	3.3	0.5	0.5	3.8	0.0	0.2	9.7	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	10.1	9.8	7.6	8.2	8.5	2.6	0.0	3.0	1.1	0.0	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.2	32.8	32.9	41.1	17.6	17.6	48.0	0.0	29.2	56.7	0.0	40.7
LnGrp LOS	E	C	C	D	B	B	D	A	C	E	A	D
Approach Vol, veh/h		957			1457			267			387	
Approach Delay, s/veh		33.4			22.9			36.7			42.4	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.4	36.8	10.9	26.2	5.4	54.9	6.3	30.9
Change Period (Y+Rc), s	3.5	5.3	3.5	* 4.9	3.5	5.3	3.5	4.9
Max Green Setting (Gmax), s	10.0	90.0	35.0	* 35	20.0	130.0	25.0	44.3
Max Q Clear Time (g_c+I1), s	9.9	26.2	7.7	20.0	3.3	23.9	4.2	9.8
Green Ext Time (p_c), s	0.4	5.3	0.1	1.2	0.0	6.9	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	29.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	850	1279	11	18	11
Future Volume (veh/h)	9	850	1279	11	18	11
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	9	895	1361	11	25	12
Peak Hour Factor	0.95	0.95	0.94	0.94	0.72	0.72
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	16	3086	2965	24	47	42
Arrive On Green	0.01	0.88	1.00	1.00	0.03	0.03
Sat Flow, veh/h	1767	3618	3676	29	1767	1572
Grp Volume(v), veh/h	9	895	669	703	25	12
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1850	1767	1572
Q Serve(g_s), s	0.5	3.8	0.0	0.0	1.3	0.7
Cycle Q Clear(g_c), s	0.5	3.8	0.0	0.0	1.3	0.7
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	16	3086	1459	1531	47	42
V/C Ratio(X)	0.57	0.29	0.46	0.46	0.53	0.28
Avail Cap(c_a), veh/h	285	3086	1459	1531	560	498
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.46	0.46	0.84	0.84	1.00	1.00
Uniform Delay (d), s/veh	44.4	0.9	0.0	0.0	43.2	42.9
Incr Delay (d2), s/veh	5.4	0.1	0.9	0.8	3.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	0.4	0.6	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	49.8	1.0	0.9	0.8	46.6	44.3
LnGrp LOS	D	A	A	A	D	D
Approach Vol, veh/h		904	1372		37	
Approach Delay, s/veh		1.5	0.9		45.8	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		84.1		5.9	4.3	79.8
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		52.7		28.5	14.5	34.7
Max Q Clear Time (g_c+I1), s		5.8		3.3	2.5	2.0
Green Ext Time (p_c), s		7.2		0.0	0.0	13.8

Intersection Summary		
HCM 6th Ctrl Delay		1.8
HCM 6th LOS		A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	663	114	389	1118	45	91	34	214	89	98	63
Future Volume (veh/h)	25	663	114	389	1118	45	91	34	214	89	98	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	753	118	423	1215	45	99	37	187	102	113	71
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	40	1423	223	344	2217	82	218	316	262	255	316	265
Arrive On Green	0.04	0.94	0.94	0.19	0.64	0.64	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1767	3042	477	1767	3465	128	1185	1856	1539	1142	1856	1561
Grp Volume(v), veh/h	28	436	435	423	618	642	99	37	187	102	113	71
Grp Sat Flow(s),veh/h/ln	1767	1763	1756	1767	1763	1830	1185	1856	1539	1142	1856	1561
Q Serve(g_s), s	1.4	2.8	2.8	17.5	17.5	17.5	7.3	1.5	10.3	7.5	4.8	3.6
Cycle Q Clear(g_c), s	1.4	2.8	2.8	17.5	17.5	17.5	12.1	1.5	10.3	9.0	4.8	3.6
Prop In Lane	1.00		0.27	1.00		0.07	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	40	825	821	344	1128	1171	218	316	262	255	316	265
V/C Ratio(X)	0.71	0.53	0.53	1.23	0.55	0.55	0.45	0.12	0.71	0.40	0.36	0.27
Avail Cap(c_a), veh/h	265	825	821	344	1128	1171	452	682	566	481	682	574
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97	0.62	0.62	0.62	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	1.6	1.6	36.3	9.0	9.0	38.4	31.6	35.3	35.4	33.0	32.5
Incr Delay (d2), s/veh	8.1	2.4	2.4	119.1	1.2	1.2	0.6	0.1	1.4	0.4	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.1	1.1	18.4	5.6	5.8	2.1	0.7	3.8	2.0	2.1	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.8	4.0	4.0	155.3	10.2	10.1	38.9	31.7	36.7	35.8	33.3	32.7
LnGrp LOS	D	A	A	F	B	B	D	C	D	D	C	C
Approach Vol, veh/h		899			1683			323			286	
Approach Delay, s/veh		5.5			46.6			36.8			34.0	
Approach LOS		A			D			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.0	48.8		20.2	5.5	64.3		20.2				
Change Period (Y+Rc), s	3.5	6.7		4.9	3.5	6.7		4.9				
Max Green Setting (Gmax), s	17.5	24.3		33.1	13.5	28.3		33.1				
Max Q Clear Time (g_c+I1), s	19.5	4.8		11.0	3.4	19.5		14.1				
Green Ext Time (p_c), s	0.0	8.2		0.7	0.0	5.4		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	634	208	184	1069	9	164	105	33	12	312	311
Future Volume (veh/h)	130	634	208	184	1069	9	164	105	33	12	312	311
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	151	737	219	214	1243	9	210	135	38	14	376	338
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.78	0.78	0.78	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	206	1169	347	591	2030	15	261	637	173	41	299	266
Arrive On Green	0.06	0.44	0.44	0.06	0.19	0.19	0.08	0.23	0.23	0.01	0.17	0.17
Sat Flow, veh/h	3428	2670	793	3428	3588	26	3428	2730	742	3428	1764	1569
Grp Volume(v), veh/h	151	487	469	214	611	641	210	85	88	14	376	338
Grp Sat Flow(s),veh/h/ln	1714	1763	1700	1714	1763	1851	1714	1763	1709	1714	1763	1570
Q Serve(g_s), s	6.1	30.0	30.0	8.4	44.5	44.5	8.4	5.5	5.8	0.6	23.7	23.7
Cycle Q Clear(g_c), s	6.1	30.0	30.0	8.4	44.5	44.5	8.4	5.5	5.8	0.6	23.7	23.7
Prop In Lane	1.00		0.47	1.00		0.01	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	206	772	744	591	998	1047	261	412	399	41	298	266
V/C Ratio(X)	0.73	0.63	0.63	0.36	0.61	0.61	0.80	0.21	0.22	0.34	1.26	1.27
Avail Cap(c_a), veh/h	575	772	744	591	998	1047	453	412	399	453	298	266
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.63	0.81	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.7	30.6	30.6	58.6	42.8	42.8	63.6	43.2	43.4	68.6	58.1	58.2
Incr Delay (d2), s/veh	3.2	2.5	2.6	0.3	2.3	2.2	2.2	0.1	0.1	1.8	140.8	148.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	12.8	12.4	3.8	21.6	22.7	3.7	2.4	2.5	0.3	22.1	20.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.9	33.0	33.1	58.9	45.1	45.0	65.9	43.3	43.5	70.4	199.0	207.0
LnGrp LOS	E	C	C	E	D	D	E	D	D	E	F	F
Approach Vol, veh/h		1107			1466			383			728	
Approach Delay, s/veh		37.8			47.1			55.7			200.2	
Approach LOS		D			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	67.0	14.2	29.0	11.9	84.9	5.2	38.0
Change Period (Y+Rc), s	5.7	* 5.7	3.5	5.3	3.5	5.7	3.5	5.3
Max Green Setting (Gmax), s	18.5	* 61	18.5	23.7	23.5	56.3	18.5	23.7
Max Q Clear Time (g_c+I1), s	10.4	32.0	10.4	25.7	8.1	46.5	2.6	7.8
Green Ext Time (p_c), s	0.4	6.4	0.2	0.0	0.4	5.2	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	75.5
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	580	62	127	1162	117	60	15	74	47	18	78
Future Volume (veh/h)	26	580	62	127	1162	117	60	15	74	47	18	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	31	699	61	151	1383	110	38	47	61	38	44	73
Peak Hour Factor	0.83	0.83	0.83	0.84	0.84	0.84	0.98	0.98	0.98	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	69	1453	737	1107	2566	1239	110	115	96	124	130	106
Arrive On Green	0.04	0.82	0.82	0.32	0.73	0.73	0.06	0.06	0.06	0.07	0.07	0.07
Sat Flow, veh/h	3428	3526	1551	3428	3526	1552	1767	1856	1542	1767	1856	1522
Grp Volume(v), veh/h	31	699	61	151	1383	110	38	47	61	38	44	73
Grp Sat Flow(s),veh/h/ln	1714	1763	1551	1714	1763	1552	1767	1856	1542	1767	1856	1522
Q Serve(g_s), s	1.2	8.1	0.9	4.4	24.6	2.2	2.9	3.4	5.4	2.9	3.2	6.6
Cycle Q Clear(g_c), s	1.2	8.1	0.9	4.4	24.6	2.2	2.9	3.4	5.4	2.9	3.2	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	69	1453	737	1107	2566	1239	110	115	96	124	130	106
V/C Ratio(X)	0.45	0.48	0.08	0.14	0.54	0.09	0.35	0.41	0.64	0.31	0.34	0.69
Avail Cap(c_a), veh/h	478	1453	737	1107	2566	1239	278	292	242	278	292	239
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.72	0.72	0.72	0.32	0.32	0.32	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.4	7.9	5.9	33.6	8.5	3.1	62.9	63.2	64.1	61.9	62.0	63.6
Incr Delay (d2), s/veh	1.2	0.8	0.2	0.0	0.3	0.0	0.7	0.9	2.6	0.5	0.6	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.3	0.4	1.8	8.1	0.8	1.3	1.6	2.2	1.3	1.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.7	8.8	6.0	33.6	8.8	3.1	63.6	64.0	66.7	62.4	62.6	66.5
LnGrp LOS	E	A	A	C	A	A	E	E	E	E	E	E
Approach Vol, veh/h		791			1644			146			155	
Approach Delay, s/veh		10.9			10.7			65.0			64.4	
Approach LOS		B			B			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.5	63.0		13.8	6.3	107.2		12.7
Change Period (Y+Rc), s	5.3	* 5.3		4.0	3.5	5.3		4.0
Max Green Setting (Gmax), s	21.5	* 58		22.0	19.5	59.7		22.0
Max Q Clear Time (g_c+I1), s	10.4	10.1		8.6	3.2	26.6		7.4
Green Ext Time (p_c), s	0.2	11.1		0.2	0.0	22.3		0.2

Intersection Summary	
HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	433	103	983	1147	111	67	577	414	100	1585	133
Future Volume (veh/h)	112	433	103	983	1147	111	67	577	414	100	1585	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	120	466	89	1080	1260	111	80	687	394	106	1686	127
Peak Hour Factor	0.93	0.93	0.93	0.91	0.91	0.91	0.84	0.84	0.84	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	542	1597	487	451	1301	115	234	1782	750	155	1935	146
Arrive On Green	0.05	0.10	0.10	0.13	0.28	0.28	0.07	0.35	0.35	0.05	0.32	0.32
Sat Flow, veh/h	3428	5066	1545	3428	4732	417	3428	5066	1546	3428	6099	459
Grp Volume(v), veh/h	120	466	89	1080	899	472	80	687	394	106	1323	490
Grp Sat Flow(s),veh/h/ln	1714	1689	1545	1714	1689	1771	1714	1689	1546	1714	1596	1771
Q Serve(g_s), s	4.7	11.9	5.7	18.4	36.8	36.8	3.1	14.2	24.8	4.3	36.5	36.5
Cycle Q Clear(g_c), s	4.7	11.9	5.7	18.4	36.8	36.8	3.1	14.2	24.8	4.3	36.5	36.5
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	542	1597	487	451	929	487	234	1782	750	155	1519	562
V/C Ratio(X)	0.22	0.29	0.18	2.40	0.97	0.97	0.34	0.39	0.53	0.68	0.87	0.87
Avail Cap(c_a), veh/h	542	1597	487	451	929	487	316	1782	750	1014	1566	579
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.1	48.3	27.3	60.8	50.1	50.1	62.2	34.0	25.1	65.9	45.1	45.1
Incr Delay (d2), s/veh	0.1	0.4	0.8	635.4	22.8	33.6	1.0	0.2	0.8	2.0	5.6	13.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	5.4	2.9	47.5	17.9	20.3	1.4	5.8	8.8	1.9	14.8	17.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.2	48.7	28.0	696.2	72.9	83.8	63.3	34.2	25.9	67.8	50.7	58.7
LnGrp LOS	E	D	C	F	E	F	E	C	C	E	D	E
Approach Vol, veh/h		675			2451			1161			1919	
Approach Delay, s/veh		47.7			349.7			33.4			53.7	
Approach LOS		D			F			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	55.4	23.0	50.6	15.8	50.6	28.6	45.0
Change Period (Y+Rc), s	4.6	6.2	4.6	6.5	6.2	* 6.2	6.5	* 6.5
Max Green Setting (Gmax), s	4.1	17.8	18.4	40.5	12.9	* 46	20.4	* 39
Max Q Clear Time (g_c+I1), s	6.3	26.8	20.4	13.9	5.1	38.5	6.7	38.8
Green Ext Time (p_c), s	0.2	0.0	0.0	3.9	0.1	5.9	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	166.1
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

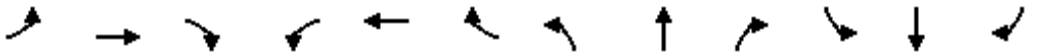
Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	94	14	90	156	0
Future Vol, veh/h	1	94	14	90	156	0
Conflicting Peds, #/hr	5	0	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	80	80	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1	136	18	113	175	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	339	185	185	0	-	0
Stage 1	185	-	-	-	-	-
Stage 2	154	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	655	855	1384	-	-	-
Stage 1	844	-	-	-	-	-
Stage 2	872	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	633	847	1371	-	-	-
Mov Cap-2 Maneuver	633	-	-	-	-	-
Stage 1	825	-	-	-	-	-
Stage 2	863	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1371	-	844	-	-
HCM Lane V/C Ratio	0.013	-	0.163	-	-
HCM Control Delay (s)	7.7	-	10.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	659	178	309	595	0	0	0	0	308	4	138
Future Volume (veh/h)	0	659	178	309	595	0	0	0	0	308	4	138
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	686	148	329	633	0				317	0	112
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94				0.98	0.98	0.98
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	1056	463	640	2143	0				526	0	234
Arrive On Green	0.00	0.30	0.30	0.19	0.61	0.00				0.15	0.00	0.15
Sat Flow, veh/h	0	3618	1545	3428	3618	0				3534	0	1572
Grp Volume(v), veh/h	0	686	148	329	633	0				317	0	112
Grp Sat Flow(s),veh/h/ln	0	1763	1545	1714	1763	0				1767	0	1572
Q Serve(g_s), s	0.0	7.1	3.1	3.6	3.6	0.0				3.5	0.0	2.7
Cycle Q Clear(g_c), s	0.0	7.1	3.1	3.6	3.6	0.0				3.5	0.0	2.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1056	463	640	2143	0				526	0	234
V/C Ratio(X)	0.00	0.65	0.32	0.51	0.30	0.00				0.60	0.00	0.48
Avail Cap(c_a), veh/h	0	2523	1106	2044	5053	0				2107	0	938
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.8	11.4	15.3	3.9	0.0				16.7	0.0	16.4
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.2	0.0	0.0				0.4	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.3	0.9	1.2	0.7	0.0				1.2	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.0	11.5	15.6	4.0	0.0				17.1	0.0	16.9
LnGrp LOS	A	B	B	B	A	A				B	A	B
Approach Vol, veh/h		834			962						429	
Approach Delay, s/veh		12.8			7.9						17.1	
Approach LOS		B			A						B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	12.9	17.7		11.3		30.6
Change Period (Y+Rc), s	5.1	5.1		5.1		5.1
Max Green Setting (Gmax), s	25.0	30.0		25.0		60.1
Max Q Clear Time (g_c+I1), s	5.6	9.1		5.5		5.6
Green Ext Time (p_c), s	0.6	3.5		0.8		3.2

Intersection Summary	
HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	798	0	0	766	394	194	99	471	0	0	0
Future Volume (veh/h)	134	798	0	0	766	394	194	99	471	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	161	961	0	0	798	369	164	186	428			
Peak Hour Factor	0.83	0.83	0.83	0.96	0.96	0.96	0.89	0.89	0.89			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	196	2470	0	0	1800	814	303	318	539			
Arrive On Green	0.11	0.70	0.00	0.00	0.53	0.53	0.17	0.17	0.17			
Sat Flow, veh/h	1767	3618	0	0	3544	1527	1767	1856	3145			
Grp Volume(v), veh/h	161	961	0	0	798	369	164	186	428			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1689	1527	1767	1856	1572			
Q Serve(g_s), s	8.0	10.1	0.0	0.0	13.0	13.4	7.6	8.3	11.7			
Cycle Q Clear(g_c), s	8.0	10.1	0.0	0.0	13.0	13.4	7.6	8.3	11.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	196	2470	0	0	1800	814	303	318	539			
V/C Ratio(X)	0.82	0.39	0.00	0.00	0.44	0.45	0.54	0.58	0.79			
Avail Cap(c_a), veh/h	432	2470	0	0	1800	814	511	536	909			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.77	0.77	0.00	0.00	0.96	0.96	1.00	1.00	1.00			
Uniform Delay (d), s/veh	39.1	5.5	0.0	0.0	12.9	12.9	34.0	34.3	35.8			
Incr Delay (d2), s/veh	2.5	0.4	0.0	0.0	0.8	1.8	0.6	0.6	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.6	3.2	0.0	0.0	4.5	4.5	3.3	3.7	4.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	5.9	0.0	0.0	13.6	14.7	34.6	35.0	36.8			
LnGrp LOS	D	A	A	A	B	B	C	C	D			
Approach Vol, veh/h		1122			1167			778				
Approach Delay, s/veh		11.0			14.0			35.9				
Approach LOS		B			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		69.5			15.1	54.4		20.5				
Change Period (Y+Rc), s		6.4			5.1	6.4		5.1				
Max Green Setting (Gmax), s		52.5			22.0	25.4		26.0				
Max Q Clear Time (g_c+I1), s		12.1			10.0	15.4		13.7				
Green Ext Time (p_c), s		5.4			0.2	3.8		1.7				

Intersection Summary	
HCM 6th Ctrl Delay	18.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	1209	24	55	1105	29	20	2	16	54	0	45
Future Volume (veh/h)	29	1209	24	55	1105	29	20	2	16	54	0	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	30	1234	22	59	1176	28	32	3	22	59	0	44
Peak Hour Factor	0.98	0.98	0.98	0.94	0.94	0.94	0.63	0.63	0.63	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	38	1673	30	582	4047	96	132	15	112	150	0	124
Arrive On Green	0.02	0.47	0.47	0.66	1.00	1.00	0.08	0.08	0.08	0.08	0.00	0.08
Sat Flow, veh/h	1767	3542	63	1767	5086	121	1348	189	1386	1370	0	1544
Grp Volume(v), veh/h	30	614	642	59	781	423	32	0	25	59	0	44
Grp Sat Flow(s),veh/h/ln	1767	1763	1842	1767	1689	1830	1348	0	1575	1370	0	1544
Q Serve(g_s), s	2.0	33.8	33.9	1.5	0.0	0.0	2.8	0.0	1.8	5.0	0.0	3.2
Cycle Q Clear(g_c), s	2.0	33.8	33.9	1.5	0.0	0.0	6.0	0.0	1.8	6.8	0.0	3.2
Prop In Lane	1.00		0.03	1.00		0.07	1.00		0.88	1.00		1.00
Lane Grp Cap(c), veh/h	38	833	870	582	2687	1456	132	0	127	150	0	124
V/C Ratio(X)	0.80	0.74	0.74	0.10	0.29	0.29	0.24	0.00	0.20	0.39	0.00	0.35
Avail Cap(c_a), veh/h	272	833	870	582	2687	1456	355	0	387	377	0	379
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	0.70	0.70	0.70	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.5	25.6	25.6	14.0	0.0	0.0	55.1	0.0	51.5	54.7	0.0	52.2
Incr Delay (d2), s/veh	11.3	4.9	4.7	0.0	0.2	0.4	0.3	0.0	0.3	0.6	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	14.6	15.2	0.6	0.1	0.1	1.0	0.0	0.7	1.8	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.7	30.5	30.3	14.0	0.2	0.4	55.4	0.0	51.8	55.4	0.0	52.9
LnGrp LOS	E	C	C	B	A	A	E	A	D	E	A	D
Approach Vol, veh/h		1286			1263			57			103	
Approach Delay, s/veh		31.3			0.9			53.8			54.3	
Approach LOS		C			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.8	62.0		13.2	6.1	100.8		13.2				
Change Period (Y+Rc), s	5.3	* 5.3		3.5	3.5	5.3		3.5				
Max Green Setting (Gmax), s	21.5	* 57		29.5	18.5	59.7		29.5				
Max Q Clear Time (g_c+I1), s	13.5	35.9		8.8	4.0	2.0		8.0				
Green Ext Time (p_c), s	0.0	9.9		0.2	0.0	12.7		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



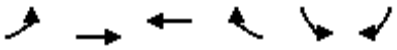
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	1161	97	150	1004	32	136	122	198	28	59	32
Future Volume (veh/h)	45	1161	97	150	1004	32	136	122	198	28	59	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	47	1209	91	165	1103	32	166	149	218	36	77	38
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.82	0.82	0.82	0.77	0.77	0.77
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	442	1616	121	194	1156	34	294	159	233	46	104	51
Arrive On Green	0.50	0.97	0.97	0.04	0.11	0.11	0.17	0.23	0.23	0.03	0.09	0.09
Sat Flow, veh/h	1767	3323	250	1767	3496	101	1767	680	995	1767	1171	578
Grp Volume(v), veh/h	47	641	659	165	556	579	166	0	367	36	0	115
Grp Sat Flow(s),veh/h/ln	1767	1763	1810	1767	1763	1834	1767	0	1675	1767	0	1749
Q Serve(g_s), s	1.7	4.4	4.5	11.1	37.6	37.7	10.4	0.0	25.8	2.4	0.0	7.7
Cycle Q Clear(g_c), s	1.7	4.4	4.5	11.1	37.6	37.7	10.4	0.0	25.8	2.4	0.0	7.7
Prop In Lane	1.00		0.14	1.00		0.06	1.00		0.59	1.00		0.33
Lane Grp Cap(c), veh/h	442	857	880	194	583	607	294	0	393	46	0	155
V/C Ratio(X)	0.11	0.75	0.75	0.85	0.95	0.95	0.57	0.00	0.93	0.79	0.00	0.74
Avail Cap(c_a), veh/h	442	857	880	302	583	607	294	0	420	243	0	449
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	0.92	0.92	0.92	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.9	0.9	0.9	56.8	52.5	52.5	46.0	0.0	45.0	58.1	0.0	53.4
Incr Delay (d2), s/veh	0.0	5.0	4.9	7.2	26.0	25.4	1.6	0.0	26.4	10.5	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.7	1.7	5.6	22.0	22.8	4.7	0.0	13.4	1.2	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.9	5.9	5.8	64.0	78.5	77.9	47.6	0.0	71.4	68.6	0.0	56.0
LnGrp LOS	C	A	A	E	E	E	D	A	E	E	A	E
Approach Vol, veh/h		1347			1300			533			151	
Approach Delay, s/veh		6.5			76.4			64.0			59.0	
Approach LOS		A			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.7	63.6	24.8	14.8	35.3	45.0	6.6	33.0
Change Period (Y+Rc), s	3.5	5.3	* 4.9	* 4.2	5.3	* 5.3	3.5	4.9
Max Green Setting (Gmax), s	20.5	35.7	* 17	* 31	16.5	* 40	16.5	30.1
Max Q Clear Time (g_c+I1), s	13.1	6.5	12.4	9.7	3.7	39.7	4.4	27.8
Green Ext Time (p_c), s	0.1	7.9	0.1	0.4	0.0	0.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	45.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	1364	1151	15	9	15
Future Volume (veh/h)	35	1364	1151	15	9	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	36	1421	1199	14	13	16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.67	0.67
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	46	3194	3036	35	37	32
Arrive On Green	0.03	1.00	1.00	1.00	0.02	0.02
Sat Flow, veh/h	1767	3618	3661	42	1767	1572
Grp Volume(v), veh/h	36	1421	592	621	13	16
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1847	1767	1572
Q Serve(g_s), s	2.4	0.0	0.0	0.0	0.9	1.2
Cycle Q Clear(g_c), s	2.4	0.0	0.0	0.0	0.9	1.2
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	46	3194	1500	1572	37	32
V/C Ratio(X)	0.79	0.44	0.39	0.39	0.36	0.49
Avail Cap(c_a), veh/h	361	3194	1500	1572	538	478
HCM Platoon Ratio	1.33	1.33	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.47	0.47	0.83	0.83	1.00	1.00
Uniform Delay (d), s/veh	57.6	0.0	0.0	0.0	58.0	58.1
Incr Delay (d2), s/veh	5.2	0.2	0.6	0.6	2.2	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.1	0.3	0.3	0.4	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	62.8	0.2	0.6	0.6	60.1	62.4
LnGrp LOS	E	A	A	A	E	E
Approach Vol, veh/h		1457	1213		29	
Approach Delay, s/veh		1.8	0.6		61.4	
Approach LOS		A	A		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		114.0		6.0	6.6	107.4
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		74.7		36.5	24.5	46.7
Max Q Clear Time (g_c+I1), s		2.0		3.2	4.4	2.0
Green Ext Time (p_c), s		15.7		0.0	0.0	12.5

Intersection Summary		
HCM 6th Ctrl Delay		1.9
HCM 6th LOS		A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	1210	82	189	1052	99	91	81	325	90	55	53
Future Volume (veh/h)	78	1210	82	189	1052	99	91	81	325	90	55	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	82	1274	78	208	1156	104	107	95	306	100	61	51
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.85	0.85	0.85	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	103	1302	80	435	1961	176	299	400	337	229	400	337
Arrive On Green	0.12	0.77	0.77	0.25	0.60	0.60	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1767	3375	206	1767	3267	294	1264	1856	1562	973	1856	1562
Grp Volume(v), veh/h	82	665	687	208	623	637	107	95	306	100	61	51
Grp Sat Flow(s),veh/h/ln	1767	1763	1818	1767	1763	1798	1264	1856	1562	973	1856	1562
Q Serve(g_s), s	5.4	42.0	42.5	12.1	26.2	26.3	9.0	5.1	22.9	11.4	3.2	3.2
Cycle Q Clear(g_c), s	5.4	42.0	42.5	12.1	26.2	26.3	12.2	5.1	22.9	16.4	3.2	3.2
Prop In Lane	1.00		0.11	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	103	680	701	435	1058	1079	299	400	337	229	400	337
V/C Ratio(X)	0.80	0.98	0.98	0.48	0.59	0.59	0.36	0.24	0.91	0.44	0.15	0.15
Avail Cap(c_a), veh/h	243	680	701	435	1058	1079	396	543	457	303	543	457
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	13.2	13.3	38.7	14.8	14.8	43.1	38.9	45.9	45.7	38.2	38.2
Incr Delay (d2), s/veh	4.7	27.4	27.6	0.2	1.9	1.8	0.3	0.1	15.2	0.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	10.1	10.5	5.1	9.9	10.2	2.8	2.3	10.2	2.8	1.5	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.0	40.6	40.8	38.9	16.7	16.7	43.4	39.0	61.1	46.2	38.2	38.2
LnGrp LOS	E	D	D	D	B	B	D	D	E	D	D	D
Approach Vol, veh/h		1434			1468			508			212	
Approach Delay, s/veh		41.7			19.8			53.3			42.0	
Approach LOS		D			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.2	53.0		30.8	10.5	78.7		30.8				
Change Period (Y+Rc), s	6.7	* 6.7		4.9	3.5	6.7		4.9				
Max Green Setting (Gmax), s	23.5	* 46		35.1	16.5	53.3		35.1				
Max Q Clear Time (g_c+I1), s	14.1	44.5		18.4	7.4	28.3		24.9				
Green Ext Time (p_c), s	0.2	1.5		0.5	0.0	10.6		0.8				

Intersection Summary	
HCM 6th Ctrl Delay	34.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	287	1071	222	61	804	120	290	170	53	60	124	243
Future Volume (veh/h)	287	1071	222	61	804	120	290	170	53	60	124	243
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	312	1164	217	64	838	113	345	202	57	67	139	245
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.84	0.84	0.84	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	370	960	178	893	1535	207	400	655	180	109	273	243
Arrive On Green	0.11	0.32	0.32	0.52	0.98	0.98	0.12	0.24	0.24	0.03	0.16	0.16
Sat Flow, veh/h	3428	2967	550	3428	3121	421	3428	2731	751	3428	1763	1569
Grp Volume(v), veh/h	312	689	692	64	473	478	345	129	130	67	139	245
Grp Sat Flow(s),veh/h/ln	1714	1763	1755	1714	1763	1779	1714	1763	1719	1714	1763	1569
Q Serve(g_s), s	12.5	45.3	45.3	1.3	1.3	1.3	13.8	8.4	8.7	2.7	10.1	21.7
Cycle Q Clear(g_c), s	12.5	45.3	45.3	1.3	1.3	1.3	13.8	8.4	8.7	2.7	10.1	21.7
Prop In Lane	1.00		0.31	1.00		0.24	1.00		0.44	1.00		1.00
Lane Grp Cap(c), veh/h	370	570	568	893	867	875	400	423	412	109	273	243
V/C Ratio(X)	0.84	1.21	1.22	0.07	0.55	0.55	0.86	0.30	0.32	0.62	0.51	1.01
Avail Cap(c_a), veh/h	526	570	568	893	867	875	649	423	412	796	273	243
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.63	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	47.3	47.4	25.1	0.6	0.6	60.7	43.6	43.8	66.9	54.3	59.2
Incr Delay (d2), s/veh	5.5	103.8	108.7	0.0	2.3	2.3	3.7	0.1	0.2	2.1	0.7	59.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	35.6	36.2	0.5	0.8	0.8	6.2	3.7	3.7	1.2	4.5	12.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.8	151.2	156.1	25.1	2.9	2.9	64.4	43.8	43.9	69.0	54.9	118.7
LnGrp LOS	E	F	F	C	A	A	E	D	D	E	D	F
Approach Vol, veh/h		1693			1015			604			451	
Approach Delay, s/veh		137.6			4.3			55.6			91.7	
Approach LOS		F			A			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	51.0	19.8	27.0	18.6	74.6	7.9	38.9
Change Period (Y+Rc), s	5.7	* 5.7	3.5	5.3	3.5	5.7	3.5	5.3
Max Green Setting (Gmax), s	28.5	* 45	26.5	21.7	21.5	52.3	32.5	15.7
Max Q Clear Time (g_c+I1), s	13.3	47.3	15.8	23.7	14.5	3.3	4.7	10.7
Green Ext Time (p_c), s	0.2	0.0	0.5	0.0	0.6	6.6	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	83.0
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	899	211	167	671	174	222	59	262	135	64	86
Future Volume (veh/h)	66	899	211	167	671	174	222	59	262	135	64	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	69	946	178	180	722	156	144	177	214	113	129	78
Peak Hour Factor	0.95	0.95	0.95	0.93	0.93	0.93	0.98	0.98	0.98	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	110	874	644	1242	2083	1064	288	302	254	167	175	146
Arrive On Green	0.06	0.50	0.50	0.72	1.00	1.00	0.16	0.16	0.16	0.09	0.09	0.09
Sat Flow, veh/h	3428	3526	1565	3428	3526	1549	1767	1856	1558	1767	1856	1547
Grp Volume(v), veh/h	69	946	178	180	722	156	144	177	214	113	129	78
Grp Sat Flow(s),veh/h/ln	1714	1763	1565	1714	1763	1549	1767	1856	1558	1767	1856	1547
Q Serve(g_s), s	2.7	34.7	8.1	2.3	0.0	0.0	10.4	12.4	18.7	8.7	9.5	6.7
Cycle Q Clear(g_c), s	2.7	34.7	8.1	2.3	0.0	0.0	10.4	12.4	18.7	8.7	9.5	6.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	874	644	1242	2083	1064	288	302	254	167	175	146
V/C Ratio(X)	0.63	1.08	0.28	0.14	0.35	0.15	0.50	0.59	0.84	0.68	0.74	0.53
Avail Cap(c_a), veh/h	478	874	644	1242	2083	1064	417	437	367	303	318	265
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.45	0.45	0.45	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.7	35.3	17.9	12.6	0.0	0.0	53.4	54.2	56.9	61.3	61.7	60.5
Incr Delay (d2), s/veh	1.0	46.8	0.5	0.0	0.4	0.3	0.5	0.7	8.0	1.8	2.3	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	16.5	3.4	0.8	0.1	0.1	4.7	5.9	7.9	4.0	4.6	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.7	82.1	18.4	12.6	0.4	0.3	53.9	54.9	64.9	63.1	64.0	61.6
LnGrp LOS	E	F	B	B	A	A	D	D	E	E	E	E
Approach Vol, veh/h		1193			1058			535			320	
Approach Delay, s/veh		71.7			2.5			58.6			63.1	
Approach LOS		E			A			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	56.0	40.0		17.2	8.0	88.0		26.8
Change Period (Y+Rc), s	5.3	* 5.3		4.0	3.5	5.3		4.0
Max Green Setting (Gmax), s	31.5	* 35		24.0	19.5	46.7		33.0
Max Q Clear Time (g_c+I1), s	14.3	36.7		11.5	4.7	2.0		20.7
Green Ext Time (p_c), s	0.3	0.0		0.6	0.1	12.5		1.1

Intersection Summary	
HCM 6th Ctrl Delay	45.0
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	232	899	145	502	666	140	169	1415	968	157	849	167
Future Volume (veh/h)	232	899	145	502	666	140	169	1415	968	157	849	167
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	258	999	129	518	687	130	186	1555	851	176	954	152
Peak Hour Factor	0.90	0.90	0.90	0.97	0.97	0.97	0.91	0.91	0.91	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	309	1140	352	1031	1926	360	245	1114	817	249	1283	202
Arrive On Green	0.09	0.22	0.22	0.30	0.45	0.45	0.07	0.22	0.22	0.07	0.23	0.23
Sat Flow, veh/h	3428	5066	1566	3428	4285	801	3428	5066	1564	3428	5599	880
Grp Volume(v), veh/h	258	999	129	518	540	277	186	1555	851	176	814	292
Grp Sat Flow(s),veh/h/ln	1714	1689	1566	1714	1689	1709	1714	1689	1564	1714	1596	1692
Q Serve(g_s), s	10.4	26.7	7.8	17.4	14.7	14.9	7.5	30.8	30.8	7.0	22.1	22.5
Cycle Q Clear(g_c), s	10.4	26.7	7.8	17.4	14.7	14.9	7.5	30.8	30.8	7.0	22.1	22.5
Prop In Lane	1.00		1.00	1.00		0.47	1.00		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	309	1140	352	1031	1518	768	245	1114	817	249	1097	388
V/C Ratio(X)	0.84	0.88	0.37	0.50	0.36	0.36	0.76	1.40	1.04	0.71	0.74	0.75
Avail Cap(c_a), veh/h	451	1140	352	1031	1518	768	536	1114	817	793	1395	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.69	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.7	52.4	29.4	40.3	25.3	25.3	63.8	54.6	33.5	63.4	50.1	50.3
Incr Delay (d2), s/veh	4.1	6.9	2.0	0.1	0.7	1.3	5.8	183.4	42.8	1.4	1.8	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	11.7	3.8	7.2	5.8	6.1	3.4	31.7	16.6	3.1	8.8	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.8	59.3	31.4	40.5	25.9	26.7	69.6	238.0	76.3	64.8	51.9	55.7
LnGrp LOS	E	E	C	D	C	C	E	F	F	E	D	E
Approach Vol, veh/h		1386			1335			2592			1282	
Approach Delay, s/veh		58.1			31.7			172.8			54.5	
Approach LOS		E			C			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.4	37.0	48.6	38.0	15.1	38.3	17.2	69.4
Change Period (Y+Rc), s	6.2	* 6.2	6.5	* 6.5	5.1	6.2	4.6	6.5
Max Green Setting (Gmax), s	32.4	* 31	23.4	* 32	21.9	40.8	18.4	36.5
Max Q Clear Time (g_c+I1), s	19.0	32.8	19.4	28.7	9.5	24.5	12.4	16.9
Green Ext Time (p_c), s	0.3	0.0	0.5	1.9	0.5	7.3	0.2	5.5

Intersection Summary	
HCM 6th Ctrl Delay	97.1
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	34	118	140	164	1
Future Vol, veh/h	0	34	118	140	164	1
Conflicting Peds, #/hr	0	0	4	0	0	4
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	47	47	84	84	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	72	140	167	202	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	654	207	207	0	-	0
Stage 1	207	-	-	-	-	-
Stage 2	447	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	430	831	1358	-	-	-
Stage 1	825	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	383	828	1353	-	-	-
Mov Cap-2 Maneuver	383	-	-	-	-	-
Stage 1	737	-	-	-	-	-
Stage 2	639	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1353	-	828	-	-
HCM Lane V/C Ratio	0.104	-	0.087	-	-
HCM Control Delay (s)	8	-	9.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	-	-

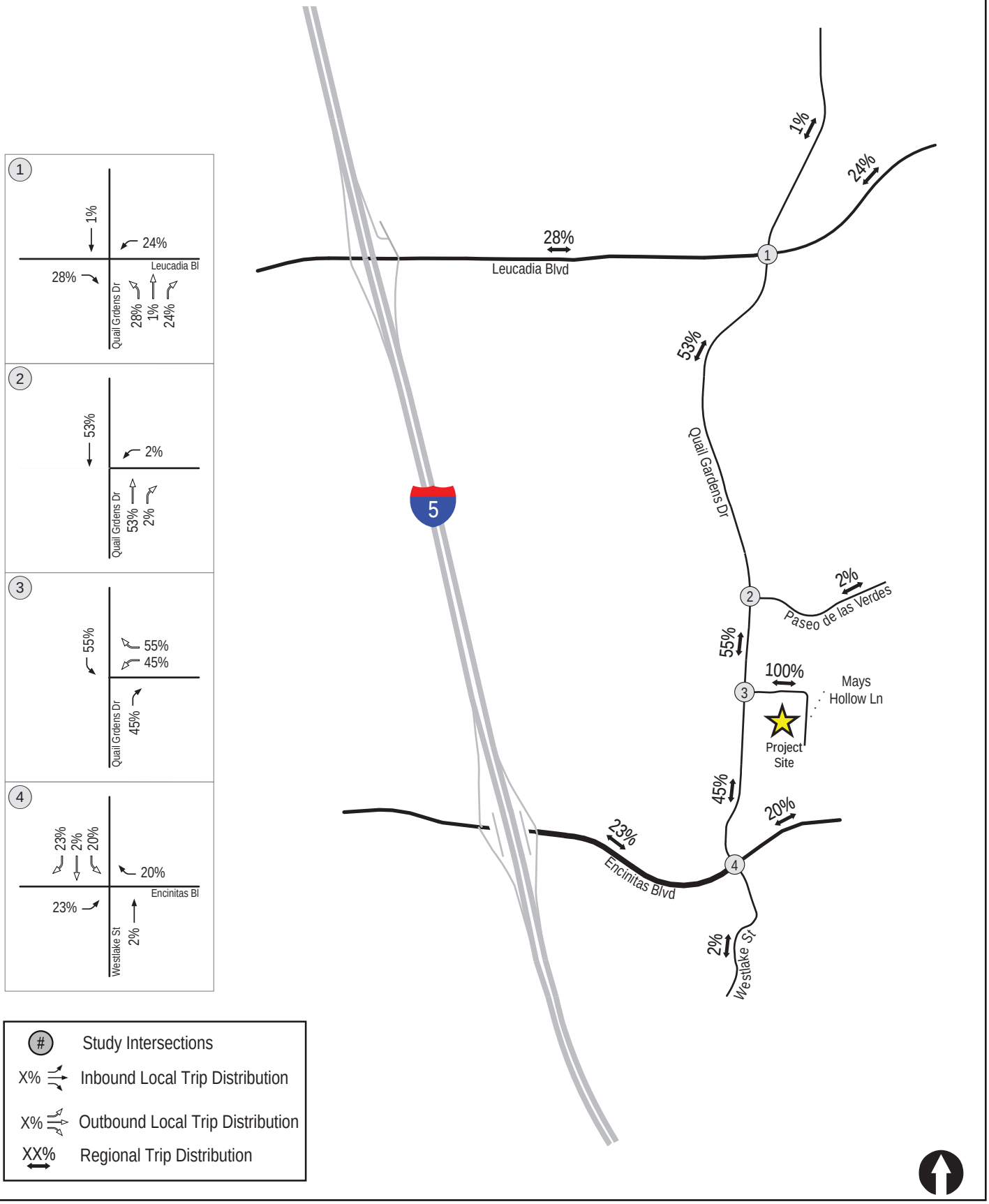
Appendix G
Cumulative Project Information

TABLE 7–1
PROJECT TRIP GENERATION

Land Use	Quantity	Daily Trip Ends (ADT)		AM Peak Hour					PM Peak Hour				
		Rate [a]	Daily Volume	Rate	In:Out Split %	Volume			Rate	In:Out Split %	Volume		
						In	Out	Total			In	Out	Total
Private School (K–8)	270 Students	3.17 / Student	858	0.90	55:45	134	109	243	0.60	47:53	76	86	162

Footnotes:
a. Rates are based on ITE Trip Generation Manual (9th Edition) for Private School (K–8), Land Use Code: 534. ***Appendix K*** contains the trip generation calculation sheets.

General Notes:
ADT = Average Daily Traffic
The AM and PM peak hour of the generator was used to be conservative.



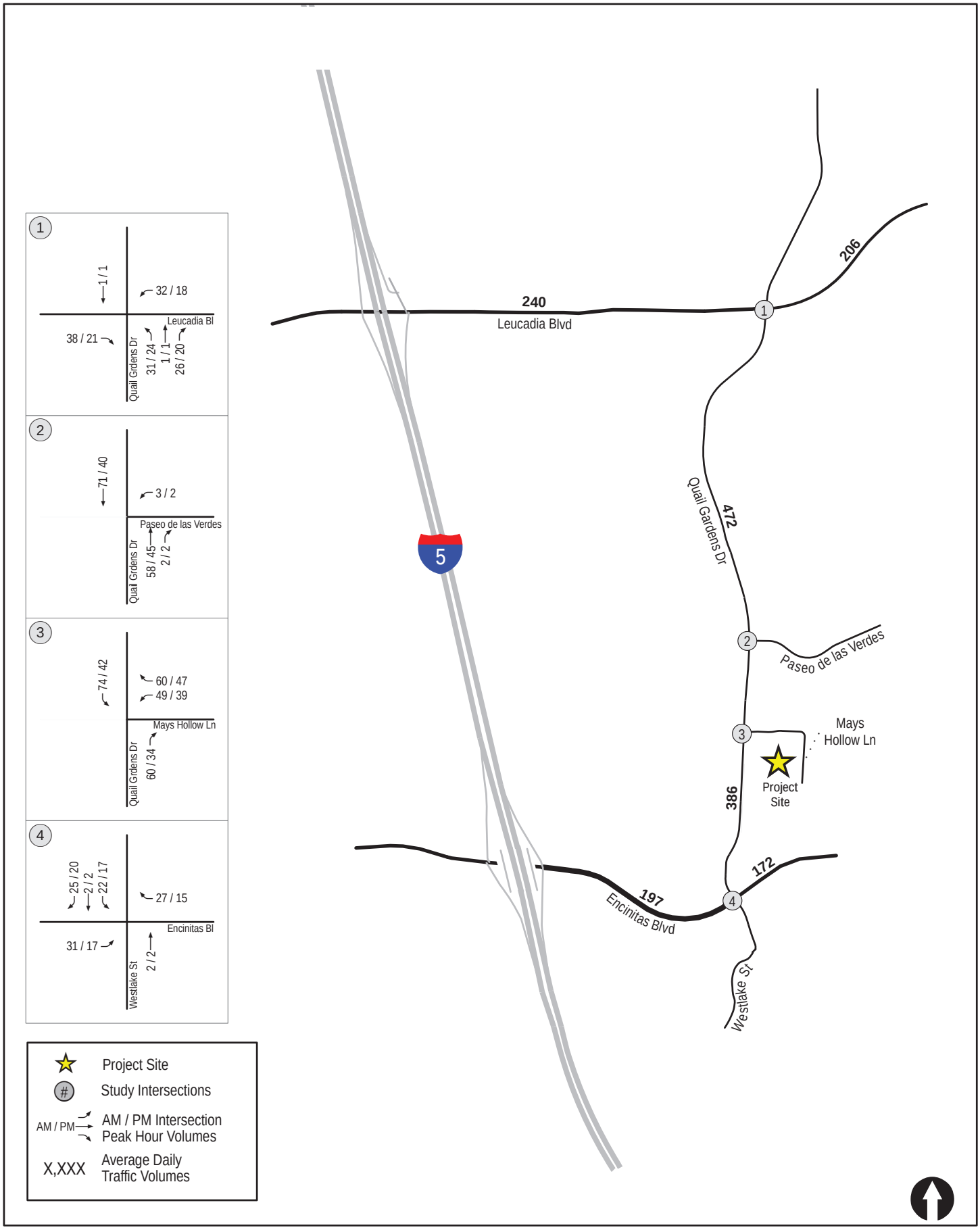
LINSCOTT LAW & GREENSPAN engineers

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Figure 7-1

Project Trip Distribution

SANDERLING WALDORF SCHOOL



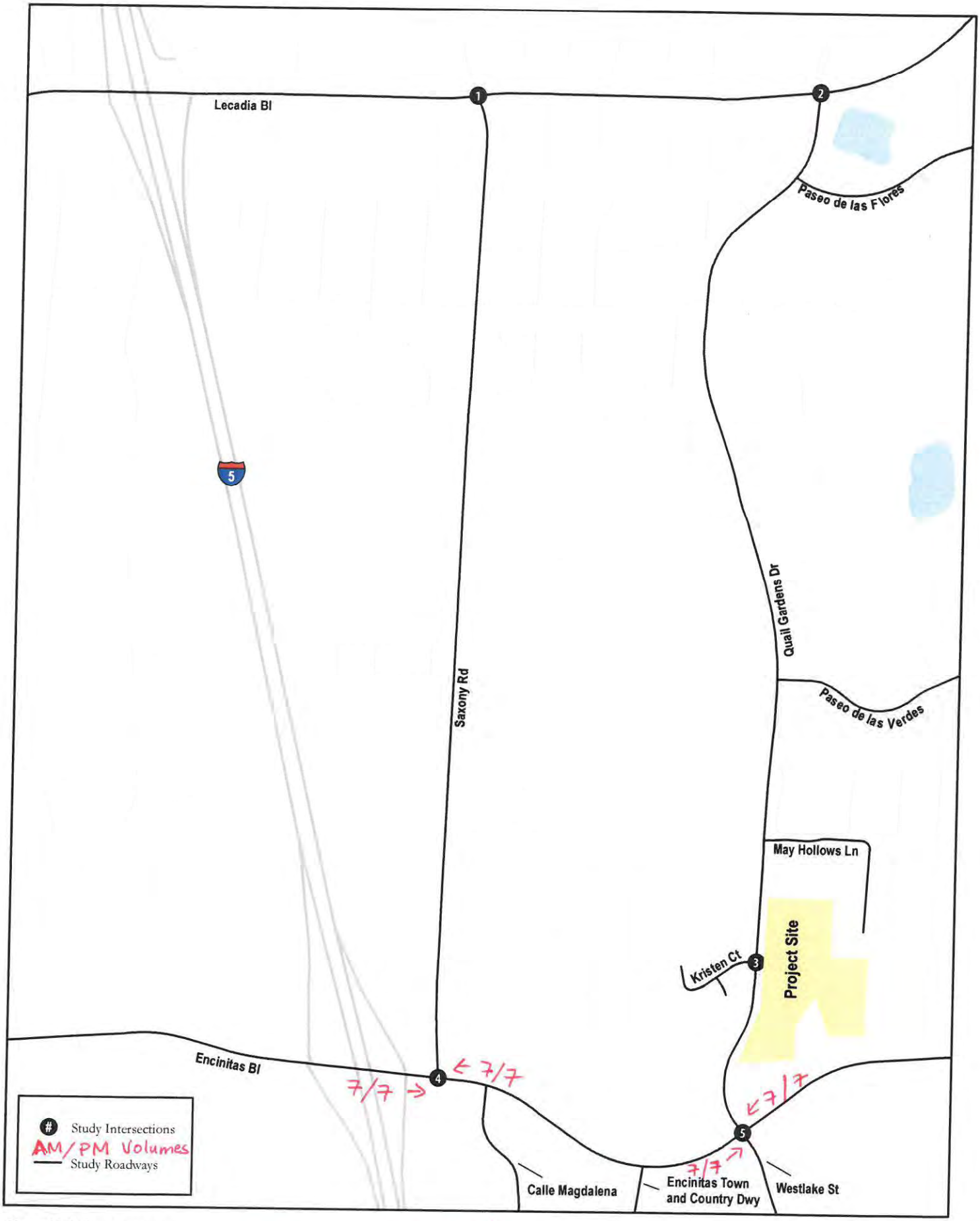
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Figure 7-2

Project Traffic Volumes

SANDERLING WALDORF SCHOOL

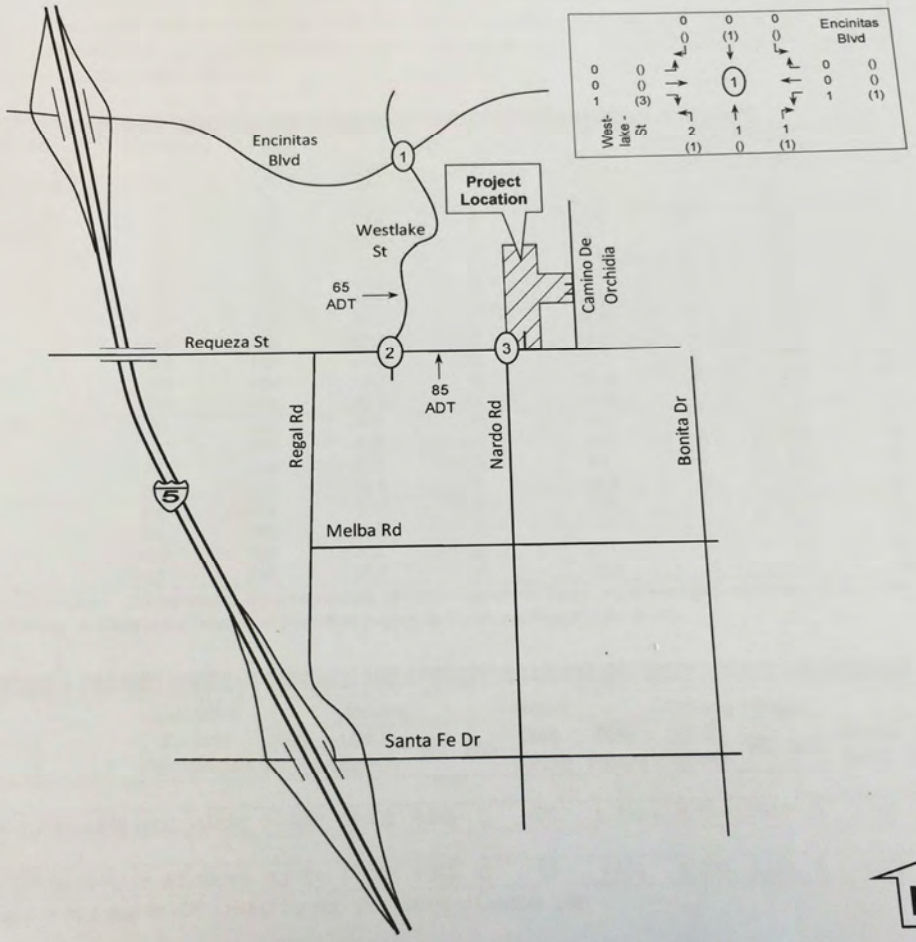


Quail Meadows
Traffic Impact Study
CHEN RYAN

O'Brien/Mobil
Station Carwash

Figure 1-2
Project Study Area

Figure 7: Project Volumes



LEGEND

XX (YY)	AM peak hour volumes at intersections PM peak hour volumes at intersections an empty () represents a 0 PM volume
Z,ZZZ	ADT volumes shown along segments
(#)	Intersection Reference Number to LOS Tables
——	Existing Roadways

4.0 Project Description

The proposed project consists of 13 residential lots located at 710 Requeza Street, Encinitas, California. The site is currently occupied by a wholesale nursery; however, to be conservative a trip credit was not applied.

4.1 Project Traffic Generation

Project traffic generation was calculated using the San Diego Association of Governments (SANDAG) trip rates from the *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. The project is calculated to generate 130 ADT, 10 AM peak hour trips (3 inbound and 7 outbound), and 13 PM peak hour trips (9 inbound and 4 outbound) as shown in **Table 8**.

TABLE 8: PROJECT TRAFFIC GENERATION

Proposed Land Use	Rate	Size & Units	ADT	%	Split	AM IN	AM OUT	%	Split	PM IN	PM OUT
13 Residential Dwelling Units	10 /DU	13 DU	130	8%	0.3 0.7	3	7	10%	0.7 0.3	9	4

Source: SANDAG *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. DU: Dwelling Unit. ADT-Average Daily Traffic; Split-percent inbound and outbound.

4.2 Project Distribution and Assignment

Project trips were distributed to the adjacent roadway network based on a review of existing counts, a field review of the surrounding area, and proximity to Encinitas Blvd. The project distribution is shown in **Figure 6** with assignment of the project volumes shown in **Figure 7.**

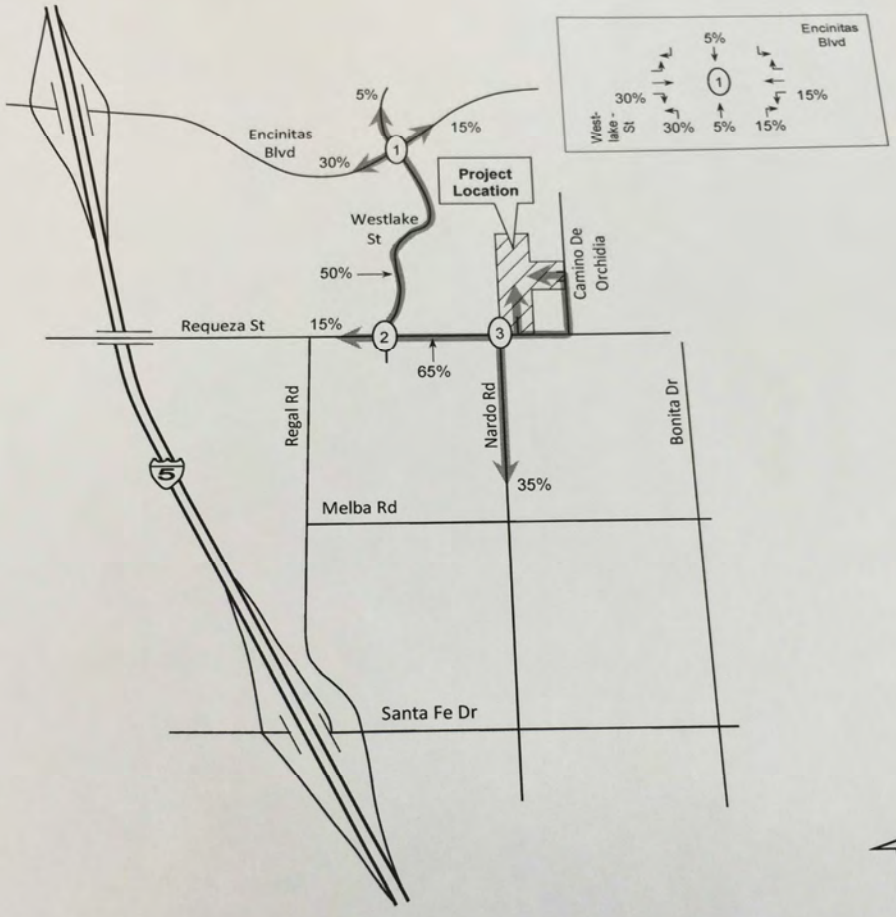
4.3 Project Access

Site access for 11 lots is proposed from a cul-de-sac street that will connect to Requeza Street just east of Nardo Road. The remaining 2 lots will have 2 driveways on Camino Del Orchida.

4.4 Project On-Site Parking

Each residential dwelling unit has a garage and space for additional parking between the garage an street.

Figure 6: Project Distribution



N

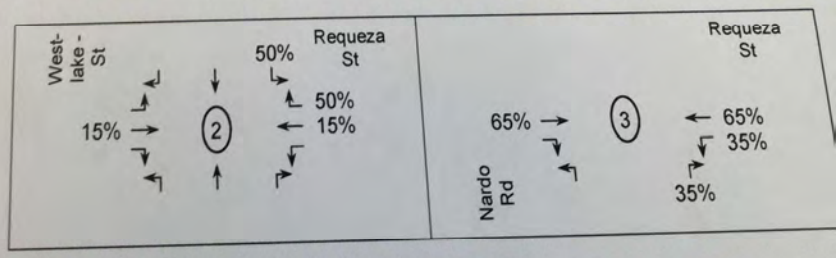
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LEGEND

Distribution

(#) Intersection Reference Number to LOS Tables

Existing Roadways



4.0 Project Description

The proposed project consists of 13 residential lots located at 712 Clark Ave, Encinitas, California. The site is currently occupied with a nursery/agriculture use with details on-line under http://dailyharvestmarket.com. Normally a trip credit would be applied; however, to be conservative, a trip credit was not applied for the traffic analysis.

4.1 Project Traffic Generation

Project traffic generation was calculated using the San Diego Association of Governments (SANDAG) trip rates from the *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. The project (without application of a trip credit) is calculated to generate 130 ADT, 10 AM peak hour trips (3 inbound and 7 outbound), and 13 PM peak hour trips (9 inbound and 4 outbound) as shown in **Table 6**.

TABLE 6: PROJECT TRAFFIC GENERATION

Proposed and Existing							AM				PM	
Uses	Rate	Size & Units	ADT	%	Split		IN	OUT	%	Split	IN	OUT
13 Dwelling Units	10 /DU	13 DU	**130**	8%	0.3	0.7	**3**	**7**	10%	0.7 0.3	**9**	**4**

Source: SANDAG *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region,* April 2002. DU: Dwelling Unit. ADT-Average Daily Traffic; Split-percent inbound and outbound.

4.2 Project Distribution and Assignment

Project trips were distributed to the adjacent roadway network based a field review of the surrounding area, locations of surrounding schools, and background distribution patterns at the intersection of Leucadia Blvd/Clark Ave (calculations included in **Appendix E**). The project distribution is shown in **Figure 5** with the trip assignment shown in **Figure 6**.

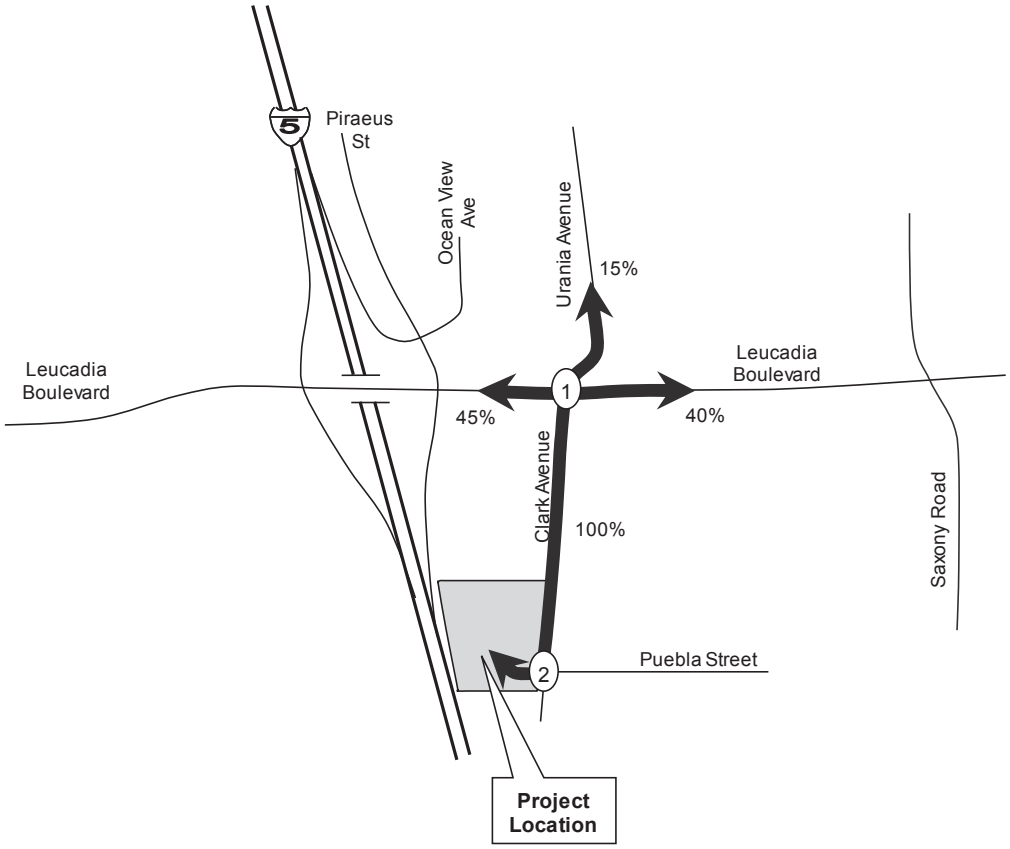
4.3 Project Access

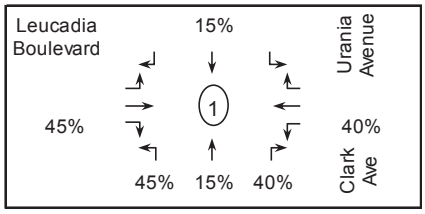
Site access is proposed at the existing driveway that acts as the west leg at the intersection of Clark Avenue and Puebla Street.

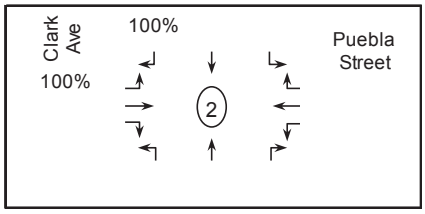
4.4 Project On-Site Parking

Each residential dwelling unit has a garage for on-site parking.

Figure 5: Project Distribution







LEGEND

Distribution

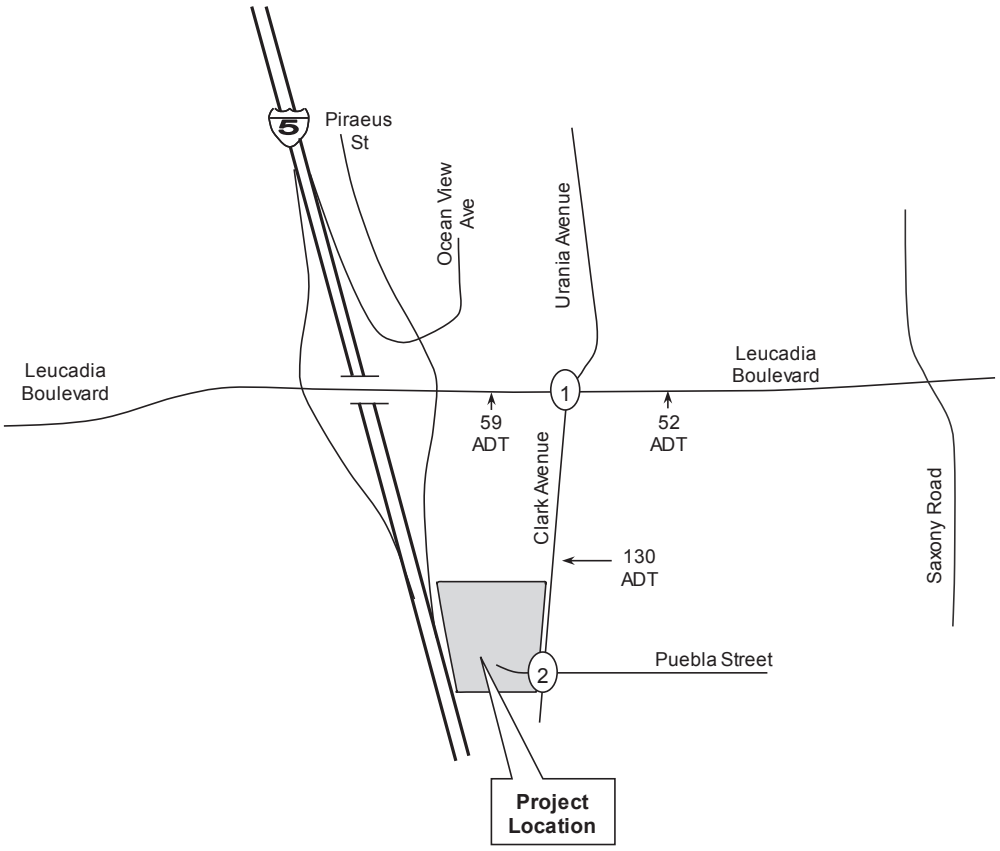
(#) Intersection Reference Number to LOS Tables

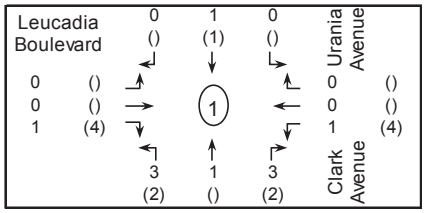
Existing Roadways

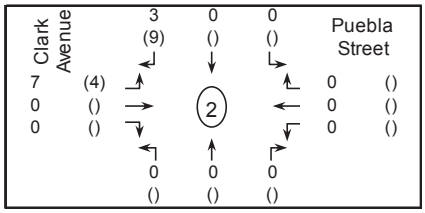
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Figure 6: Project Volumes





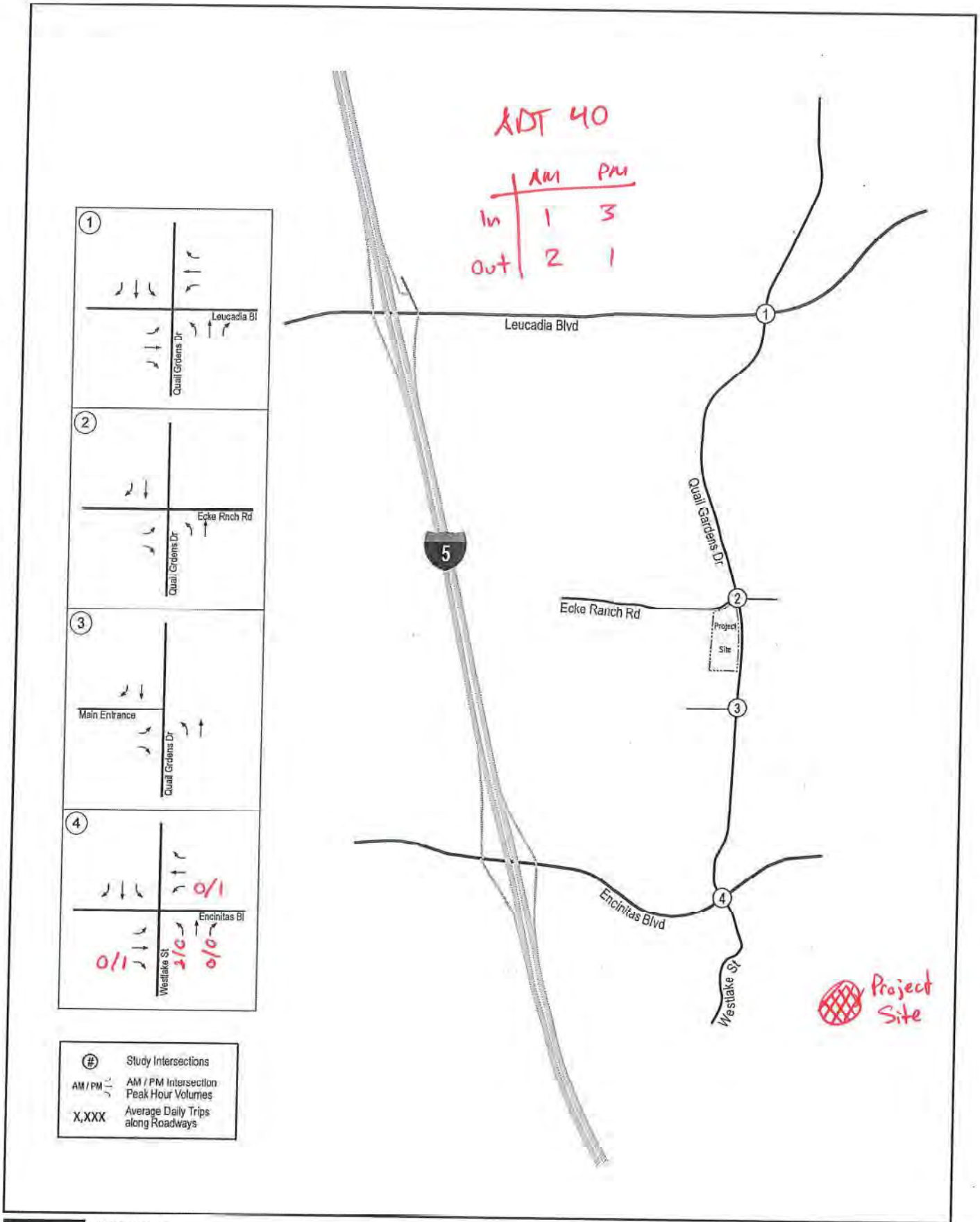


LEGEND

XX	AM peak hour volumes at intersections
(YY)	PM peak hour volumes at intersections an emply () represents a 0 PM volume
Z,ZZZ	ADT volumes show n along segments
(#)	Intersection Reference Number to LOS Tables
———	Existing Roadw ays

N

No Scale



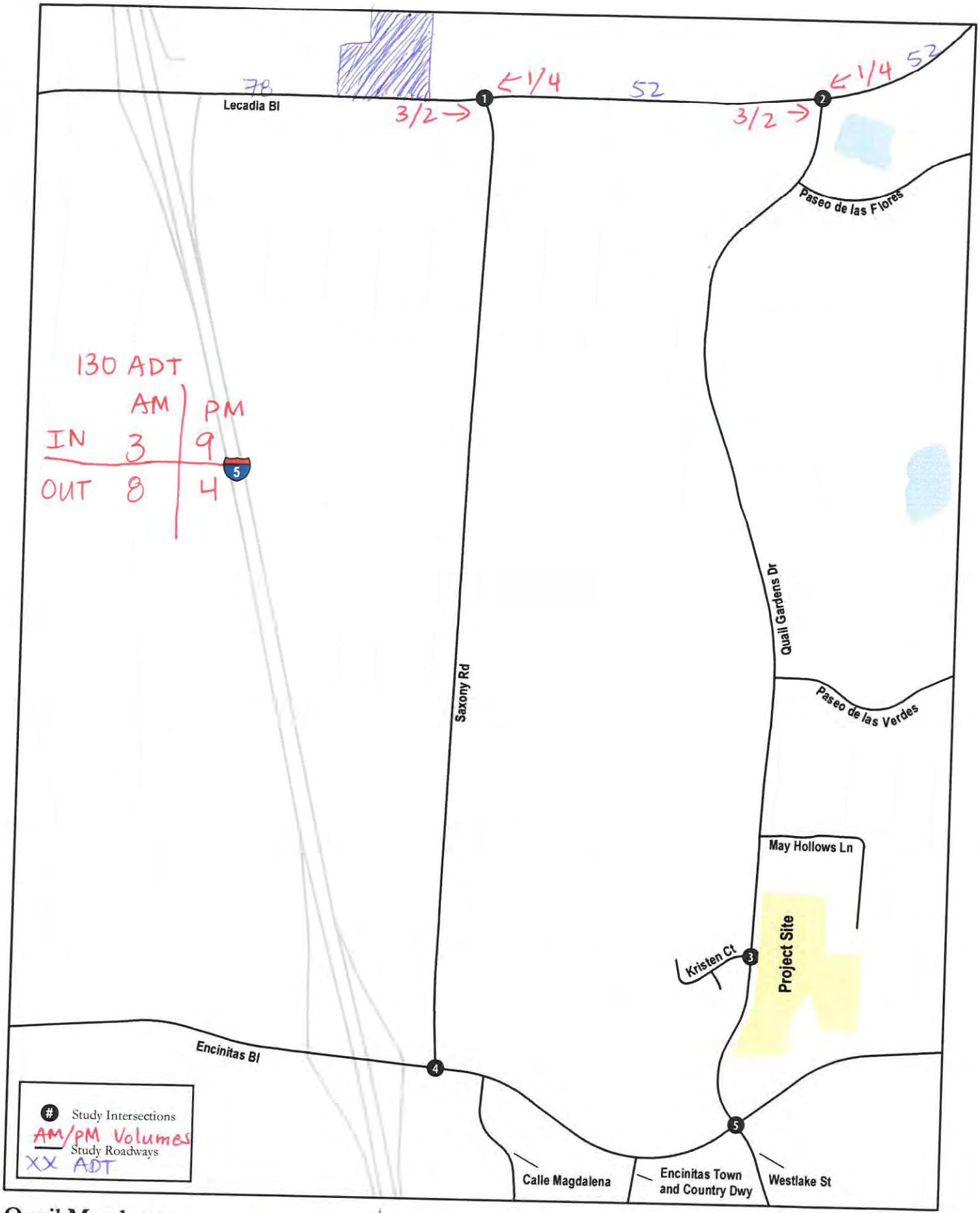
LINSCOTT LAW & GREENSPAN engineers

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Tentative Parcel Map

Traffic Volumes

SAN DIEGO BOTANIC GARDEN



Quail Meadows
Traffic Impact Study
CHEN RYAN

Leucadia
(Speciman House)

Figure 1-2
Project Study Area

1.0 INTRODUCTION AND SUMMARY

A. Purpose of the TIA and Study Objectives

The purpose of this traffic impact analysis (TIA) is to evaluate the traffic impacts of the proposed Ocean View development. The project is proposed to be developed with 69 assisted living beds and 144 independent living units. The site is located south of Encinitas Boulevard, directly across from Delphinium Street in the City of Encinitas.

Study objectives include the following:

Existing (2017) Traffic. Existing traffic will be counted to determine current conditions. This constitutes the environmental setting for a CEQA analysis at the time that the hearing body reviews the project. Traffic count data shall be new or recent.

Existing (2017) Plus Project Traffic. Traffic generated by the proposed project will be added to existing traffic counts to identify and analyze impacts on the circulation system.

Existing + Cumulative (EC). Traffic generated by other approved projects in the study area shall be identified and added to the Existing traffic conditions. This may also include projects that are proposed and in the review process, but not yet fully approved.

Existing + Cumulative + Project (ECP). Traffic generated by the proposed project (P) shall be added to the Existing + Cumulative (EC) traffic conditions.

B. Site Location and Study Area

The project site is generally located south of Encinitas Boulevard, directly across from Delphinium Street in the City of Encinitas. Figure 1-A illustrates the site location and the traffic analysis study area.

In general, the study area shall include any intersection of Collector or higher classification street with another Collector roadway or higher classification street, at which the proposed project will add 50 or more peak hour trips. The study area includes the following locations:

STUDY AREA INTERSECTION
1. Delphinium St./Encinitas Blvd.

TABLE 3-2

PROJECT TRIP GENERATION SUMMARY

LAND USE	QUANTITY[1]		PEAK HOUR						DAILY
			AM			PM			
			IN	OUT	TOTAL	IN	OUT	TOTAL	
Assisted Living	69	Bed	6	4	10	7	8	15	184
Senior Adult Housing-Attached	144	Units	10	19	29	20	17	37	495
TOTAL PROJECT TRIPS			16	23	39	27	25	52	679

2. Project Trip Distribution and Assignment

Trip distribution represents the directional orientation of traffic to and from the project site. The project's trip distribution patterns are based on the proximity of the residential units to the proposed driveway locations, the surrounding trip attractors (employment bases, commercial opportunities, schools, recreation centers, etc.), and the regional freeway interchanges. The trip distribution pattern for the project is illustrated on Figure 3-A.

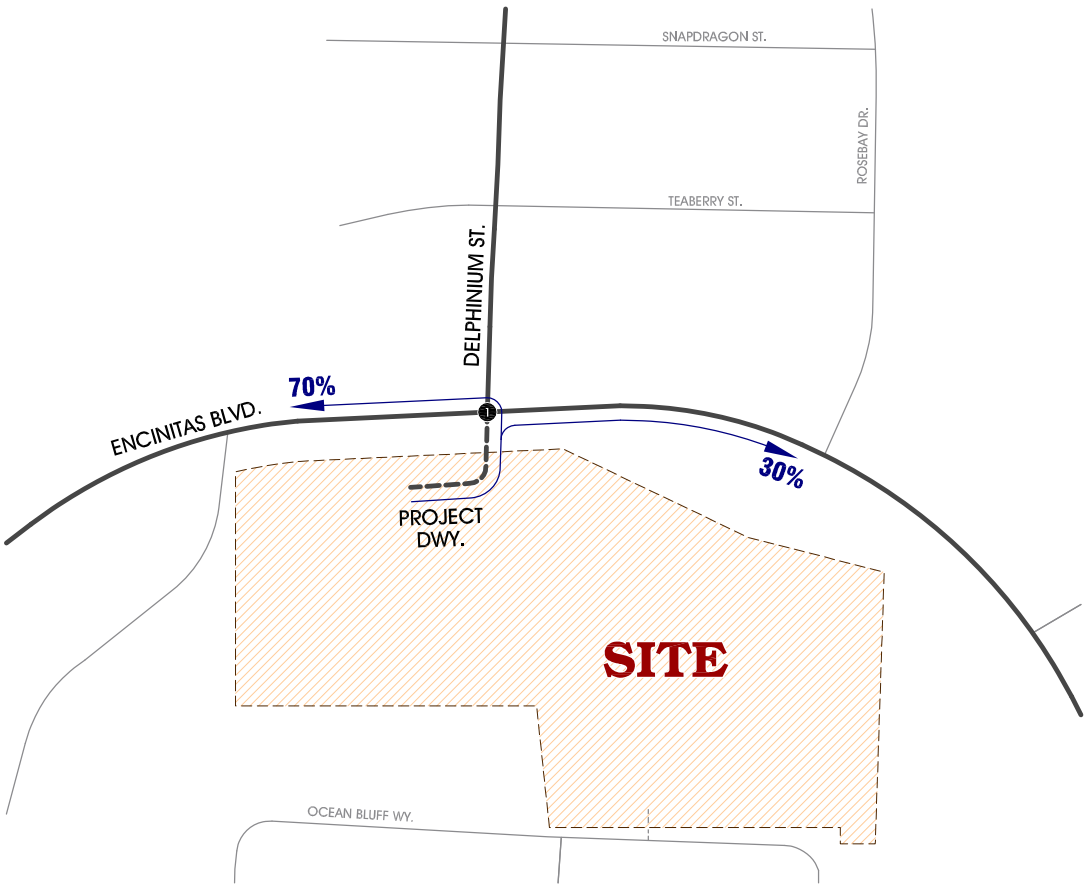
3. Project Peak Hour Turning Movement Traffic

The assignment of traffic from the site to the adjoining roadway system has been based upon the site's trip generation, trip distribution, proposed arterial highway and local street systems, which would be in place by the time of initial occupancy of the site. Based on the identified project traffic generation and distribution, project peak hour intersection traffic volumes and average daily traffic (ADT) volumes are shown on Figures 3-B.

B. Existing Plus Project Traffic Conditions

Existing plus Project (EP) AM and PM peak hour intersection turning movement volumes and average daily traffic (ADT) volumes are shown on Figure 3-C.

FIGURE 3-A
PROJECT TRIP DISTRIBUTION



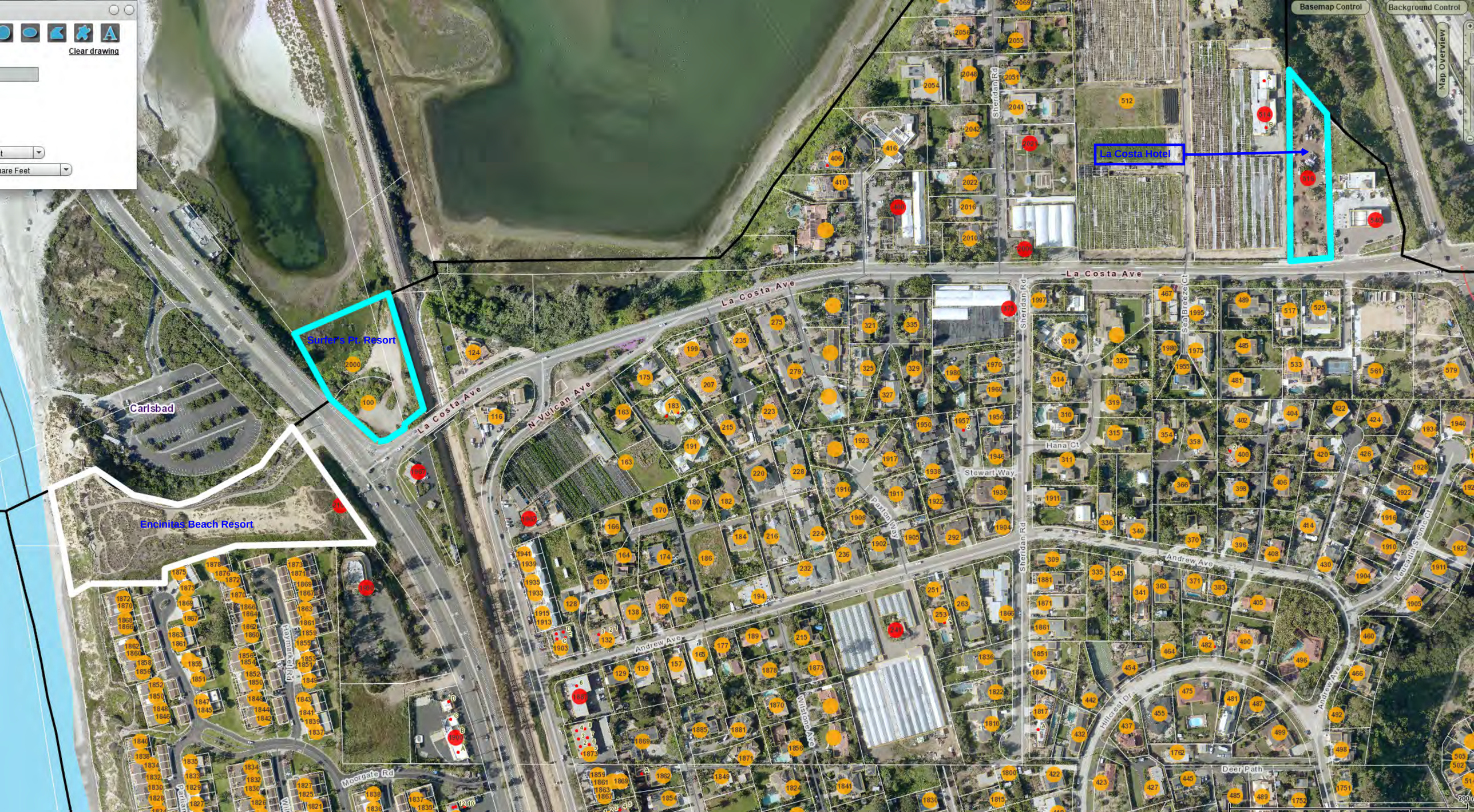
LEGEND:

1 = INTERSECTION ID

= FUTURE PROJECT DRIVEWAY

10% = PERCENT TO/FROM PROJECT

N


Clear drawing
Basemap Control
Background Control
Map Overview
La Costa Hotel
Surfer's Pt. Resort
Encinitas Beach Resort
Carlsbad
La Costa Ave
N Vulcan Ave
Sheridan Rd
Sea Breeze Ct
Hana Ct
Stewart Way
Paxton Way
Andrew Ave
Wilstone Ave
Hillcrest Dr
Deer Path
Moorgate Rd
Leucadia Scenic Ct

4.0 Project Description

The proposed project is a 25-unit timeshare/hotel resort located on the northeast corner of North Coast Highway 101 and La Costa Avenue, Encinitas, California. The project site is currently vacant. The project is proposed in two phases; however, to be conservative, this traffic study analyzed the project in one phase with a total of 25 units.

4.1 Project Traffic Generation

Project traffic generation was calculated using the San Diego Association of Governments (SANDAG) trip rates from the *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. The project is calculated to generate 250 ADT, 15 AM peak hour trips (9 inbound and 6 outbound), and 20 PM peak hour trips (12 inbound and 8 outbound) as shown in **Table 6**.

TABLE 6: PROJECT TRAFFIC GENERATION

Proposed Land Use	Rate	Size & Units	ADT	AM %	AM Split	AM IN	AM OUT	PM %	PM Split	PM IN	PM OUT
25 Resort Units	10 /Rm	25 Rm	250	6%	0.6 0.4	9	6	8%	0.6 0.4	12	8

Source: SANDAG *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region,* April 2002. Rm: Occupied Room.
ADT-Average Daily Traffic; Split-percent inbound and outbound. Spreadsheet rounding may result in ±1 to above numbers.

4.2 Project Distribution and Assignment

Project trips were distributed to the adjacent roadway network based on the previous traffic study prepared for this project (excerpts included in **Appendix F**). Due to the right-in/right-out project driveway, the distribution incorporates an anticipated U-turn at North Coast Highway 101/Ponto Road (approximately 1 mile north of the project site). Patrons may use other public roadways to reach I-5 north of the project site; therefore, the distribution is conservative with most of the project traffic returning to La Costa Avenue to reach I-5. Additionally, the number of project trips traveling into and through the City of Carlsbad are less than 10 peak hour trips. The SANTEC/ITE guidelines recommend that intersections and segments be analyzed with 50 or more peak hour project trips. This project generates 15 AM peak hour trips and 20 PM Peak hour trips, which is well below the 50 peak hour trip threshold trigger requiring the analysis of an intersection. The project distribution is shown in **Figure 5** with assignment of project volumes shown in **Figure 6.**

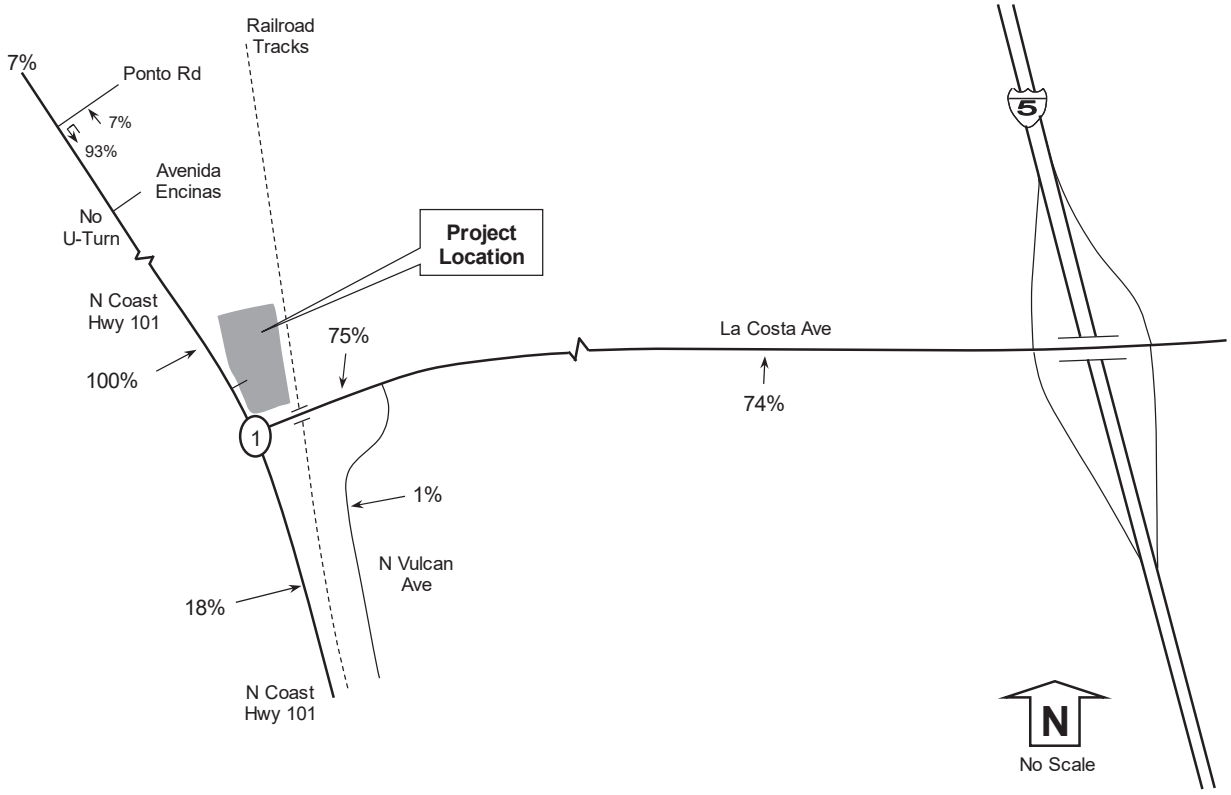
4.3 Project Access

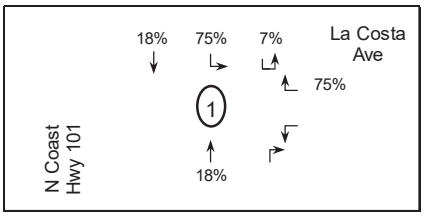
Project access is proposed from a single right-in/right-out driveway on North Coast Highway.

4.4 Project On-Site Parking

A total of 49 on-site parking spaces are proposed for the project.

Figure 5: Project Distribution





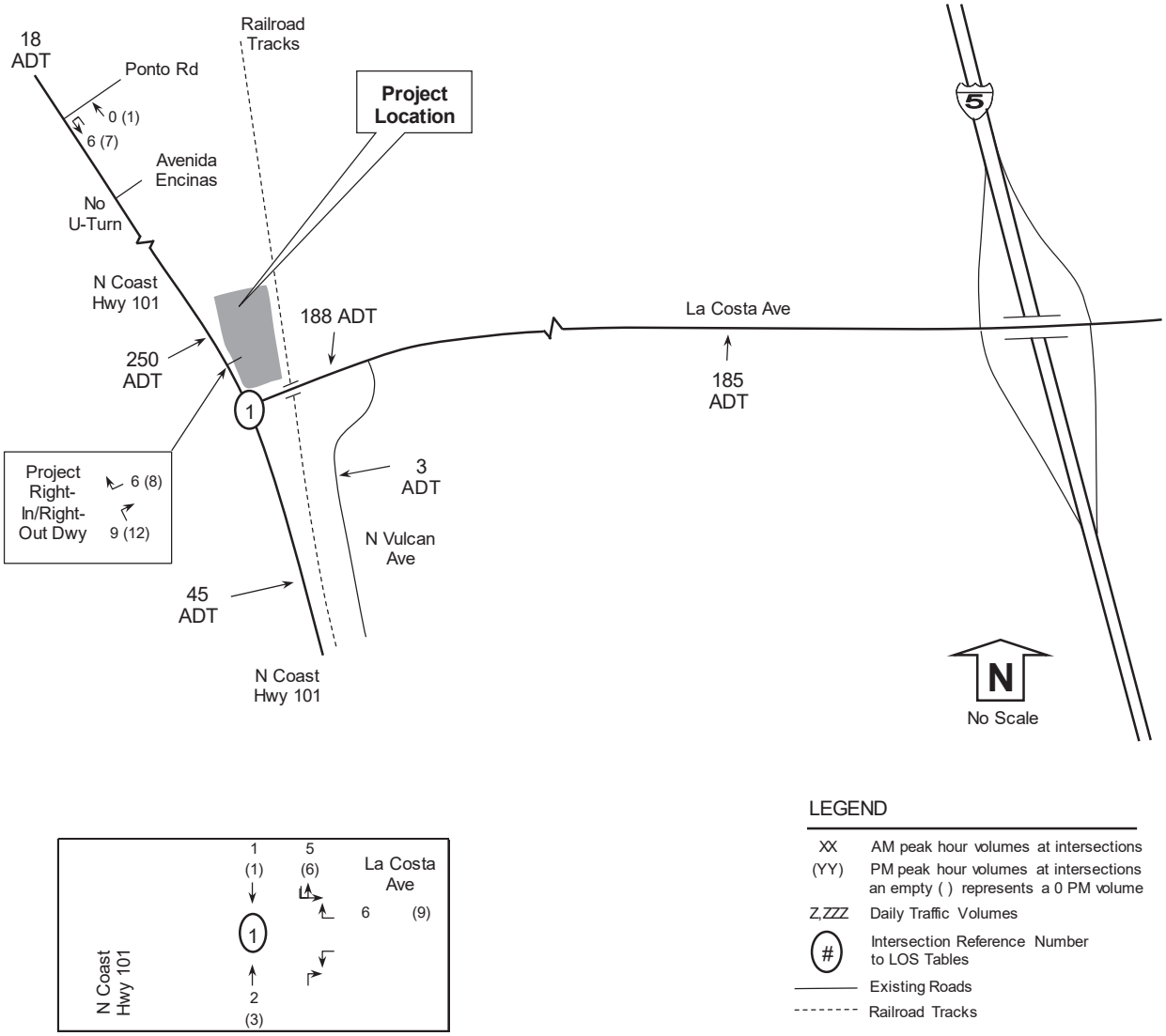
LEGEND

X% Distribution

(#) Intersection Reference Number to LOS Tables

Existing Roadways

Figure 6: Project Volumes



LEGEND

XX	AM peak hour volumes at intersections
(YY)	PM peak hour volumes at intersections an empty ( ) represents a 0 PM volume
Z,ZZZ	Daily Traffic Volumes
(#)	Intersection Reference Number to LOS Tables
———	Existing Roads
- - - - - - -	Railroad Tracks

4 PROJECT TRAFFIC

This section describes the proposed project, estimated trip generation, trip distribution, and assignment of trips to the adjacent roadway network.

4.1 Project Description

The project proposes to construct a 17-room hotel with a 3,089 sf restaurant. The restaurant will service the guests of the hotel and members of the public. The project is located on the north side of La Costa Avenue and just west of I-5 at 516 La Costa Avenue (APN #216-030-10-00).

Access will be provided by a single driveway off of La Costa Avenue. The driveway will be unsignalized with stop controls on the approach to La Costa Avenue.

4.2 Project Trip Generation

Trip generation rates for the project were developed utilizing *SANDAG Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002.* The hotel and sit-down, high turnover land uses would most resemble the proposed project. Trip credits such as passby trips and transit reduction factors were applied to the proposed uses based on standard SANDAG trip generation reduction factors. Passby trips are trips that are already on the road network and "passing by" the project site. A passby reduction factor of 20 percent was applied during the PM peak hour. A five percent transit reduction factor was applied to the daily traffic.

Table 4-1 summarizes the weekday trip generation rates and calculations.

Table 4-1
Weekday Trip Generation Summary

TRIP GENERATION RATES[1]						
		AM PEAK		PM PEAK		
Land Use	Weekday Daily	% ADT	In:Out Ratio	% ADT	In:Out Ratio	
Hotel	10 trips / rm	6%	0.60 : 0.40	8%	0.60 : 0.40	
Sit Down, High Turnover	160 trips / ksf	8%	0.50 : 0.50	8%	0.60 : 0.40	

TRIP GENERATION CALCULATIONS								
			AM PEAK			PM PEAK		
Land Use	Amount	ADT	In	Out	Total	In	Out	Total
Proposed Uses								
Hotel	17 rm	170	7	4	11	9	5	14
Sit Down, High Turnover	3.089 ksf	495	20	20	40	24	16	40
Passby Reduction (20% PM)		n/a	n/a			-5	-3	-8
Transit Reduction (5% daily)		-25	n/a			n/a		
DRIVEWAY TRIPS		665	27	24	51	33	21	54
NET NEW TRIPS		640	27	24	51	28	18	46

Notes:
ksf: 1,000 square feet, rm: room
1. The trip rates for the convenience market are based on *SANDAG's Brief Guide of Vehicular Trip Generation Rates for the San Diego Region, April 2002.*

As shown in the table, the project is forecasted to generate a total of 665 daily trips with 51 AM peak-hour trips and 54 PM peak-hour trips at the project driveway. After applying the passby and transit reduction trip credits, the project is forecasted to generate a net total of 640 daily trips with 51 AM peak-hour trips and 46 PM peak-hour trips. However, as a conservative estimate, passby and transit reduction trip credits were not used for the analysis to represent the worst case scenario.

4.3 Project Trip Distribution

Based on existing travel patterns in the study area and on logical connections to regional facilities, the following list shows the assumed project trip distribution for the proposed project:

- 30 percent to/from the north via I-5
- 30 percent to/from the south via I-5
- 20 percent to/from the east via La Costa Avenue
- 20 percent to/from the west via La Costa Avenue

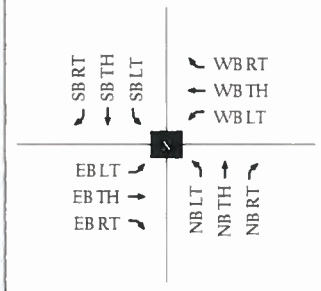
Figure 4-1 displays the assumed project trip distribution through the study intersections and project driveway.

4.4 Project Trip Assignment

Based on the project trip generation and distribution, the project trips were assigned to the intersections and project driveway in the study area. **Figure 4-2** illustrates the weekday project trip assignment.

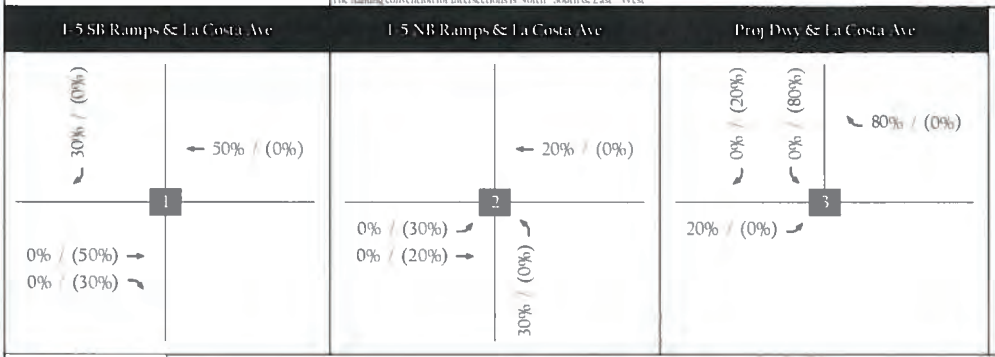


LEGEND



xx% Trip Distribution Percentage

xx% (yy%) Enter % (Exit %)
The naming convention for intersections is North, South & East, West



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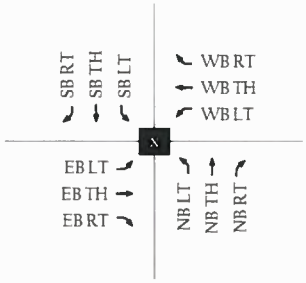
516 La Costa Development

Project Trip Distribution

Figure 4-1



LEGEND

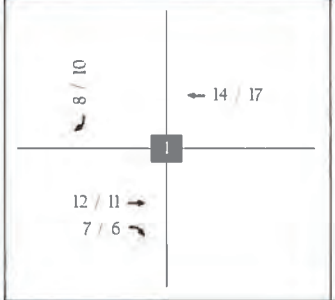


xx,xxx ADT

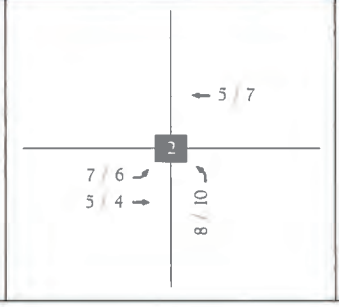
xx / yy AM / PM Peak Hour Turning Movement Volumes
The naming convention for intersections is North / South & East / West

N

I-5 SB Ramps & La Costa Ave



I-5 NB Ramps & La Costa Ave



Proj Dwy & La Costa Ave



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516 La Costa Development

Project Trip Assignment

Figure 4-2

3.10 TRANSPORTATION AND CIRCULATION

This section discusses the proposed project relative to the existing regional and local transportation network, potential project traffic impacts, and mitigation measures to reduce potentially significant impacts. The analysis in this section is based on the *510-516 La Costa Avenue Residential Subdivision Draft Traffic Impact Analysis* (TIA) (2018), prepared by LOS Engineering, Inc. and peer reviewed by Michael Baker International. The report is provided as Appendix 3.10.

3.10.1 Existing Conditions

The project would be located on La Costa Avenue between North Coast Highway 101 and Interstate 5 (I-5) and all traffic to and from the project would be via a main driveway off La Costa Avenue. La Costa Avenue from N. Coast Highway 101 to Interstate 5 (I-5) is constructed as a two-lane roadway with one travel lane in each direction. Bike lanes are provided on both sides of the roadway. The posted speed limit is 40 miles per hour (mph).

The following intersections were analyzed as part of the traffic study:

1. La Costa Avenue/N. Coast Highway 101 (signalized)
2. La Costa Avenue/N. Vulcan Ave (unsignalized)
3. La Costa Avenue/Sheridan Road north of La Costa Ave (unsignalized)
4. La Costa Avenue/Sheridan Road south of La Costa Ave (unsignalized)
5. La Costa Avenue/Seabreeze Court (unsignalized)
6. La Costa Avenue/I-5 Southbound Ramp (signalized)
7. La Costa Avenue/I-5 Northbound Ramp (signalized)

The following street segments were also analyzed as part of the traffic study:

1. La Costa Avenue from N. Coast Highway to N. Vulcan Avenue
2. La Costa Avenue from N. Vulcan Avenue to Sheridan Road
3. La Costa Avenue from Sheridan Road to Seabreeze Court
4. La Costa Avenue from Seabreeze Court to I-5

As shown in Table 3.10-1 and Table 3.10-2, all study intersections and street segments were calculated to operate at LOS D or better, except for the:

1. Intersection of La Costa Avenue at N. Vulcan Ave (LOS E PM),
2. Intersection of La Costa Avenue at Seabreeze Ct (LOS E AM),
3. Segment of La Costa Avenue from N. Vulcan to Sheridan (LOS E),
4. Segment of La Costa Avenue from Sheridan to Seabreeze (LOS F), and
5. Segment of Interstate 5 from La Costa Ave to Leucadia Blvd (LOS E NB PM).

TABLE 3.10-1 EXISTING INTERSECTION OPERATIONS

Intersection and (Analysis)[1]	Movement	Peak Hour	Existing Delay[2]	Existing LOS[3]
1) La Costa Ave at	Overall	AM	10.6	B
N Coast Hwy (S)	Overall	PM	11.9	B
2) La Costa Ave at	NB LR	AM	20.9	C
N Vulcan Ave (U)	NB LR	PM	48.4	E
	Overall	*AM*	*5.0*	*A*
	Overall	*PM*	*8.5*	*A*
3) La Costa Ave at	SB LR	AM	21.2	C
Sheridan N/La Costa (U)	SB LR	PM	19.0	C
	Overall	*AM*	*0.2*	*A*
	Overall	*PM*	*0.1*	*A*
4) La Costa Ave at	NB LR	AM	18.9	C
Sheridan S/La Costa (U)	NB LR	PM	21.3	C
	Overall	*AM*	*1.8*	*A*
	Overall	*PM*	*1.9*	*A*
5) La Costa Ave at	NB LR	AM	36.3	E
Seabreeze Ct (U)	SB LR	AM	0.0	A
	NB LR	PM	22.5	C
	SB LR	PM	0.0	A
	Overall	*AM*	*0.0*	*A*
	Overall	*PM*	*0.1*	*A*
6) La Costa Ave at	Overall	AM	24.5	C
I-15 SB Ramps (S)	Overall	PM	23.4	C
7) La Costa Ave at	Overall	AM	25.4	C
I-15 NB Ramps (S)	Overall	PM	20.3	C

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in sec. 3) LOS: Level of Service.

TABLE 3.10-2 EXISTING SEGMENT VOLUMES AND OPERATIONS

Segment	Classification (as built)	Existing Daily Volume	# of lanes	LOS E Capacity	V/C	LOS
La Costa Ave						
N. Coast Hwy 101 to N. Vulcan	4 Ln Collector (2U)	11,357	2	14,000	0.81	D
N. Vulcan to Sheridan	4 Ln Collector (2U)	13,305	2	14,000	0.95	E
Sheridan to Seabreeze	4 Ln Collector (2U)	14,857	2	14,000	1.06	F
Seabreeze to I-5	4 Ln Collector (2U Aug)	14,970	2	20,000	0.75	C

Notes: Classification (as built): 2U Aug = 2 lane undivided augmented roadway. LOS: Level of Service. V/C: Volume to Capacity ratio.

3.10.2 Regulatory Framework

Federal

Congestion Management Process

Federal Highway Administration (FHWA) 23 Code of Federal Regulations (CFR) 450.320 requires that all transportation management areas address congestion management through a process involving an analysis of multimodal metropolitan area-wide strategies that are developed to enhance safety and integrated management of new and existing transportation facilities eligible for federal funding. The San Diego Association of Governments (SANDAG) has been designated as having jurisdiction over the transportation management areas in the San Diego region.

State

California Department of Transportation

The California Department of Transportation's (Caltrans) (2002) Guide for the Preparation of Traffic Impact Studies includes criteria for evaluating the effects of land use development and changes to the circulation system on state highways. Caltrans endeavors to maintain a target level of service (LOS) at the transition between LOS C and LOS D on state highway system facilities.

However, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target level of service. If an existing state highway facility is operating at less than the target level of service, the existing level should be maintained. Caltrans acknowledges that the region-wide goal for an acceptable level of service on all freeways, roadway segments, and intersections is LOS D.

Senate Bill 375

Senate Bill (SB) 375 (codified in the Government Code and the Public Resources Code) took effect in 2008 and provides a new planning process to coordinate land use planning, regional transportation plans, and funding priorities to help California meet the greenhouse gas (GHG) reduction goals established by Assembly Bill (AB) 32. SB 375 requires metropolitan planning organizations (MPOs) to incorporate a Sustainable Communities Strategy in their Regional Transportation Plans to achieve GHG emissions reduction targets by reducing vehicle miles traveled from light-duty vehicles through the development of more compact, complete, and efficient communities.

Local

City of Encinitas General Plan

The City's General Plan is the primary source of long-range planning and policy direction used to guide growth and preserve the quality of life within Encinitas. The General Plan states that a goal of the City is to analyze proposed land uses to ensure that the designations would contribute to a proper balance of land uses within the community. The relevant goals and policies for the project include:

Circulation Element

GOAL 1:	Encinitas should have a transportation system that is safe, convenient and efficient, and sensitive to and compatible with surrounding community character.
Policy 1.2:	Endeavor to maintain Level of Service C as a basic design guideline for the local system of roadways understanding that the guideline may not be attainable in all cases.
Policy 1.3:	Prohibit development which results in Level of Service E or F at any intersection unless no alternatives exist and an overriding public need can be demonstrated.

Policy 1.10: Encourage the design of roads and traffic controls to optimize safe traffic flow by minimizing turning, curb parking, uncontrolled access, and frequent stops.

Policy 1.15: The City will actively support an integrated transportation program that encourages and provides for mass transit, bicycle transportation, pedestrians, equestrians, and carpooling.

Policy 1.17: Standards shall be established and implemented to provide for adequate levels of street lighting, based on criteria of safety and related to volumes of vehicular, pedestrian and bicycle activity and potential points of conflict. Such standards shall be designed to respect different community and neighborhood needs for lighting, different community standards for design and special attention given to preservation of dark sky.

GOAL 2: The City will make every effort to develop a varied transportation system that is capable of serving both the existing population and future residents while preserving community values and character.

Policy 2.2: Require new residential development to have roadways constructed to City standards before the roads can be dedicated to the City.

Policy 2.10: Establish landscaping buffer and building setback requirements along all roads which are local augmented status or larger, except where inappropriate.

GOAL 7: Every effort will be made to have new development, both in the City and in the region, provide for all costs of the incremental expansion of the circulation system necessary to accommodate that development. Costs include, but are not limited to, costs of right-of-way and construction, including costs of moving utilities and structures, and costs for landscaping and intersection improvement.

3.10.3 Analysis of Project Effects and Determination of Significance

This section lists the thresholds used to conclude whether a traffic impact would be significant, describes the impact analysis for the project relative to such thresholds, and identifies mitigation measures, as appropriate, to avoid or to reduce significant impacts.

Guidelines for the Determination of Significance

A project would result in a significant impact if it would:

1. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections).

2. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.

3. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

4. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

5. Result in inadequate emergency access.

6. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

Level of service is used to denote operational conditions that occur on a roadway segment or at an intersection under varying traffic volume loads. LOS provides a quantitative analysis that accounts for roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. LOS designation is reported differently for signalized intersections, unsignalized intersections, and roadway segments.

The concept of LOS is defined as a qualitative measure describing operational conditions within a traffic stream, and the motorist's perception of operations. For example, the segments LOS is based on the average daily trips (ADT), the functional classification of the roadway, maximum capacity, and roadway geometrics.

Analysis Approach and Methodology

The traffic analysis prepared for the study was based on the 2010 Highway Capacity Manual (HCM) operations analysis using LOS evaluation criteria. The operating conditions of the study intersections and street segments were measured using the HCM level of service designations, which ranges from LOS A through LOS F.

The following scenarios were included in the traffic report based on direction from City staff:

1. Existing Conditions
2. Existing plus Project Conditions
3. Existing plus Cumulative Conditions
4. Existing plus Cumulative plus Project Conditions

Intersections

The study intersections were analyzed based on the operational analysis outlined in the 2010 HCM. This process defines LOS in terms of average control delay per vehicle, which is measured in seconds. Levels of service at the intersections were calculated using the computer software program Synchro 8.0 (Trafficware Corporation). The HCM level of service for the range of delay by seconds for unsignalized and signalized intersections is described in Table 3.10-3.

TABLE 3.10-3 INTERSECTION LEVEL OF SERVICE DEFINITIONS (HCM 2010)

Level of Service	Unsignalized (TWSC and AWSC) Control Delay (seconds per vehicle)	Signalized Control Delay (seconds per vehicle)
A	0–10	≤ 10
B	> 10–15	> 10–20
C	> 15–25	> 20–35
D	> 25–35	> 35–55
E	> 35–50	> 55–80
F	> 50	> 80

Source: LOS Engineering 2018
Notes: TWSC: two-way stop control; AWSC: all-way stop control

Street Segments

The street segments were analyzed based on the functional classification of the roadway using the City of Encinitas Public Road Standards from the General Plan Circulation Element Roadway Capacity Standards (excerpts included in Appendix A of Appendix 3.10 to this EIR). The roadway segment capacity and LOS standards used to analyze street segments are summarized in Table 3.10-4.

TABLE 3.10-4 STREET SEGMENT DAILY CAPACITY AND LOS (CITY OF ENCINITAS)

Facility Type	Number of Lanes	LOS C	LOS D	LOS E
Prime Arterial	6	<46,000	<51,200	<57,000
Prime Arterial – Augmented	6	<53,000	<60,000	<66,000
Major Roadway	4	<28,200	<31,600	<35,200
Major Roadway – Augmented	4+	<36,300	<41,000	<45,400
Collector Roadway	4	<26,000	<29,200	<32,400
Local Roadway – Augmented	2+	<16,000	<18,000	<20,000
Local Roadway	2	<11,200	<12,600	<14,000

Source: LOS Engineering 2018

Freeway Segments

The freeway segments were analyzed based on multilane highway LOS criteria using a volume-to-capacity (V/C) ratio as outlined in the 2010 HCM. Caltrans' accepted methodology for the analysis of freeway sections is to use the most current edition of the HCM as noted on page 5 of Caltrans' (2002) Guide for the Preparation of Traffic Impact Studies, which also documents a maximum service flow rate of 2,350 passenger cars per hour per lane. The freeway LOS operations are based on the Caltrans' (2002) Guide for the Preparation of Traffic Impact Studies V/C ratios as summarized in Table 3.10-5. Excerpts from the Caltrans guide showing freeway LOS and maximum service flow rate are included in Appendix B of the TIA (Appendix 3.10 to this EIR).

TABLE 3.10-5 FREEWAY LEVEL OF SERVICE

Measure of Effectiveness	LOS A	LOS B	LOS C	LOS D	LOS E
Volume-to-Capacity Ratio	0.30	0.50	0.71	0.89	1.00

Source: LOS Engineering 2018

Significance Criteria

A project is considered to have caused a significant impact if the new project traffic has decreased the operations on the surrounding roadways that are operating at LOS E or F per the thresholds defined by the City of Encinitas, based on the San Diego Traffic Engineers' Council and the Institute of Transportation Engineers (SANTEC/ITE) guidelines (Appendix C of Appendix 3.10 to this EIR) as shown in Table 3.10-6.

TABLE 3.10-6 CITY OF ENCINITAS IMPACT SIGNIFICANT THRESHOLDS

Level of Service with Project	Allowable Increase Due to Project Impacts				
	Freeways	Roadway Segments		Intersections	Ramp Metering
	V/C	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
E & F	0.01	0.02	1	2	2*

Source: LOS Engineering 2018
Notes: * The impact is only considered significant if the total delay exceeds 15 minutes. Delay = Average stopped delay per vehicle measured in seconds; V/C = volume-to-capacity ratio (capacity at LOS E should be used); Speed = Arterial speed measured in miles per hour for Congestion Management Program (CMP) analyses

If a significant impact is calculated due to the addition of project traffic, then a feasible mitigation is required to return the impact to LOS D. Otherwise, the impact may be considered significant and unmitigated.

Analysis

Issue 1: Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections).

Existing plus Project Conditions

Project traffic generation was calculated using the SANDAG trip rates from the Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002. With a credit applied for two existing homes, the project (with a net increase of 46 homes) is calculated to generate 460 average daily trips (ADT), 38 AM peak hour trips (12 inbound and 26 outbound) and 46 PM peak hour trips (33 inbound and 13 outbound).

As shown in Table 3.10-7, under Existing plus Project Conditions, the project is calculated to have a direct impact at the intersection of La Costa Avenue and Seabreeze Court. Because the project would degrade the level of service from LOS A to LOS E during both the AM and PM peak hours at this intersection, a

significant impact would occur. Implementation of mitigation measure **MM TRA-1** would reduce the project's potential impact to a **less than significant** level.

Table 3.10-8 shows that project impacts to all studied street segments would be **less than significant**.

TABLE 3.10-7 EXISTING PLUS PROJECT INTERSECTION OPERATIONS

Intersection and (Analysis)[1]	Movement	Peak Hour	Existing		Existing + Project			
			Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delta[4]	Sig[5]
1) La Costa Ave at	Overall	AM	10.6	B	10.7	B	0.1	No
N Coast Hwy (S)	Overall	PM	11.9	B	12.0	B	0.1	No
2) La Costa Ave at	NB LR	AM	20.9	C	21.1	C	0.2	No
N Vulcan Ave (U)	NB LR	PM	48.4	E	49.0	E	0.6	No
	Overall	*AM*	*5.0*	*A*	*5.1*	*A*	*0.1*	*No*
	Overall	*PM*	*8.5*	*A*	*8.9*	*A*	*0.4*	*No*
3) La Costa Ave at	SB LR	AM	21.2	C	21.3	C	0.1	No
Sheridan N/La Costa (U)	SB LR	PM	19.0	C	19.1	C	0.1	No
	Overall	*AM*	*0.2*	*A*	*0.2*	*A*	*0.0*	*No*
	Overall	*PM*	*0.1*	*A*	*0.1*	*A*	*0.0*	*No*
4) La Costa Ave at	NB LR	AM	18.9	C	19.0	C	0.1	No
Sheridan S/La Costa (U)	NB LR	PM	21.3	C	21.6	C	0.3	No
	Overall	*AM*	*1.8*	*A*	*1.8*	*A*	*0.0*	*No*
	Overall	*PM*	*1.9*	*A*	*1.9*	*A*	*0.0*	*No*
5) La Costa Ave at	NB LR	AM	36.3	E	37.5	E	1.2	No
Seabreeze Ct (U)	SB LR	AM	0.0	A	38.9	E	38.9	Yes
	NB LR	PM	22.5	C	23.5	C	1.0	No
	SB LR	PM	0.0	A	35.5	E	35.5	Yes
	Overall	*AM*	*0.0*	*A*	*0.8*	*A*	*0.8*	*No*
	Overall	*PM*	*0.1*	*A*	*0.6*	*A*	*0.5*	*No*
6) La Costa Ave at	Overall	AM	24.5	C	24.6	C	0.1	No
I-15 SB Ramps (S)	Overall	PM	23.4	C	23.5	C	0.1	No
7) La Costa Ave at	Overall	AM	25.4	C	25.6	C	0.2	No
I-15 NB Ramps (S)	Overall	PM	20.3	C	20.3	C	0.0	No

Source: LOS Engineering 2018
Notes:
1. Intersection Analysis – (S) signalized, (U) unsignalized
2. Delay – HCM average control delay in seconds
3. LOS – level of service
4. Delta is the increase in delay from project
5. Significant impact? (yes or no)

TABLE 3.10-8 EXISTING PLUS PROJECT SEGMENT VOLUMES AND OPERATIONS

Segment	Classification (as built)	Existing				Project	Existing + Project					
		Daily Volume	LOS E Capacity	V/C	LOS	Daily Volume	Daily Volume	LOS E Capacity	V/C	LOS	Change in V/C	Sig?
La Costa Ave												
N. Coast Hwy 101 to N. Vulcan	4 Ln Collector (2U)	11,357	14,000	0.811	D	78	11,435	14,000	0.817	D	0.006	No
N. Vulcan to Sheridan	4 Ln Collector (2U)	13,305	14,000	0.950	E	92	13,397	14,000	0.957	E	0.007	No
Sheridan to Seabreeze	4 Ln Collector (2U)	14,857	14,000	1.061	F	92	14,949	14,000	1.068	F	0.007	No
Seabreeze to I-5	4 Ln Collector (2U Aug)	14,970	20,000	0.749	C	368	15,338	20,000	0.767	C	0.018	No

Notes: Classification (as built): 2U Aug = 2 lane undivided augmented roadway. LOS: Level of Service. V/C: Volume to Capacity ratio. Sig? Significant Impact (yes or no).

Mitigation Measures

TRA-1 **La Costa Avenue at Seabreeze Court.** Improve La Costa Avenue between Seabreeze Court and I-5 as depicted in Figure 3.10-1 of the EIR.

Timing/Implementation: *During project construction and prior to issuance of a certificate of occupancy.*

Enforcement/Monitoring: *City of Encinitas Engineering and Planning Divisions*

Level of Significance After Mitigation

Less than significant. The proposed improvements to La Costa Avenue between Seabreeze Court and I-5 would improve the intersection operations, resulting in a less than significant impact (refer to Table 23 in Appendix 3.10).

Issue 2: Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.

As shown in Table 3.10-9, the project would contribute to a cumulative impact at the intersection of La Costa Avenue and Seabreeze Court. Since the project would result in a direct impact at this intersection (refer to Issue 1 discussion), it is to be expected that the addition of cumulative traffic from area growth (see Table 2-3 in Section 2.0, Project Description) would compound that impact. The project's contribution to this cumulative impact is significant, however implementation of mitigation measure **TRA-1** would reduce the impact to a **less than significant** level.

Table 3.10-10 shows that while the four study street segments would operate at LOS D or F under the cumulative scenario, the addition of project traffic would not be considered cumulatively considerable and thus **less than significant**.

TABLE 3.10-9 EXISTING PLUS CUMULATIVE PLUS PROJECT INTERSECTION OPERATIONS

Intersection and (Analysis)[1]	Movement	Peak Hour	Existing + Cumulative Delay[2]	Existing + Cumulative LOS[3]	Existing + Cumulative + Project Delay[2]	Existing + Cumulative + Project LOS[3]	Delta[4]	Cumulative[5]
1) La Costa Ave at	1a: Signal	AM	23.4	C	23.5	C	0.1	No
N Coast Hwy (S)	1a: Signal	PM	42.9	D	43.3	D	0.4	No
	1b: Roudabout	AM	6.3	A	6.3	A	0.0	No
	1b: Roudabout	PM	13.9	B	14.0	B	0.1	No
2) La Costa Ave at	NB LR	AM	29.9	D	30.6	D	0.7	No
N Vulcan Ave (U)	NB LR	PM	129.5	F	130.4	F	0.9	No
	Overall	*AM*	*5.9*	*A*	*6.0*	*A*	*0.1*	*No*
	Overall	*PM*	*18.4*	*C*	*18.8*	*C*	*0.4*	*No*
3) La Costa Ave at	SB LR	AM	26.8	C	26.9	D	0.1	No
Sheridan N/La Costa (U)	SB LR	PM	24.4	C	24.7	C	0.3	No
	Overall	*AM*	*0.2*	*A*	*0.2*	*A*	*0.0*	*No*
	Overall	*PM*	*0.1*	*A*	*0.1*	*A*	*0.0*	*No*
4) La Costa Ave at	NB LR	AM	23.5	C	23.7	C	0.2	No
Sheridan S/La Costa (U)	NB LR	PM	30.1	D	30.8	D	0.7	No
	Overall	*AM*	*1.9*	*A*	*1.9*	*A*	*0.0*	*No*
	Overall	*PM*	*2.1*	*A*	*2.1*	*A*	*0.0*	*No*
5) La Costa Ave at	NB LR	AM	49.5	E	51.2	F	1.7	No
Seabreeze Ct (U)	SB LR	AM	0.0	A	59.0	F	59.0	Yes
	NB LR	PM	30.6	D	32.6	D	2.0	No
	SB LR	PM	0.0	A	56.3	F	56.3	Yes
	Overall	*AM*	*0.0*	*A*	*1.1*	*A*	*1.1*	*No*
	Overall	*PM*	*0.1*	*A*	*0.6*	*A*	*0.5*	*No*
6) La Costa Ave at	Overall	AM	24.5	C	24.8	C	0.3	No
I-15 SB Ramps (S)	Overall	PM	23.3	C	23.6	C	0.3	No
7) La Costa Ave at	Overall	AM	27.6	C	27.8	C	0.2	No
I-15 NB Ramps (S)	Overall	PM	21.4	C	21.4	C	0.0	No

Source: LOS Engineering 2018

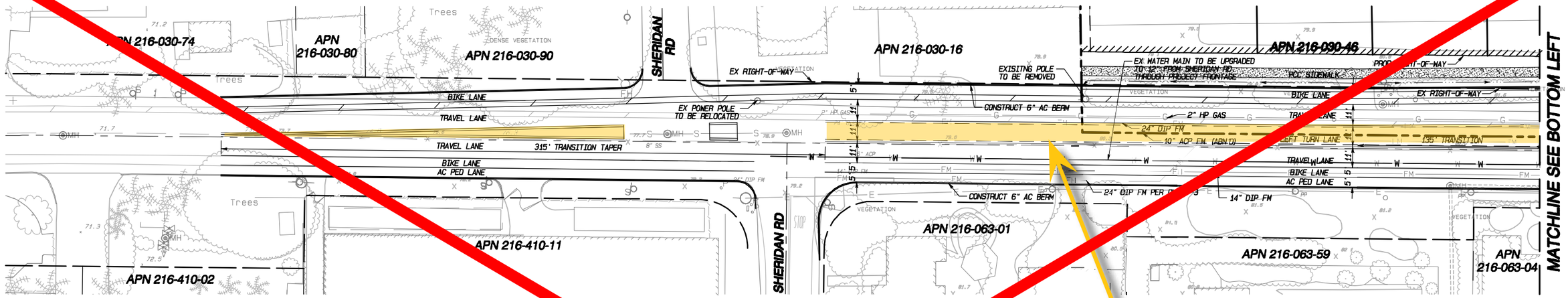
Notes:

1. Intersection Analysis – (S) signalized, (U) unsignalized
2. Delay – HCM average control delay in seconds
3. LOS – level of service
4. Delta is the increase in delay from project
5. Significant impact? (yes or no)

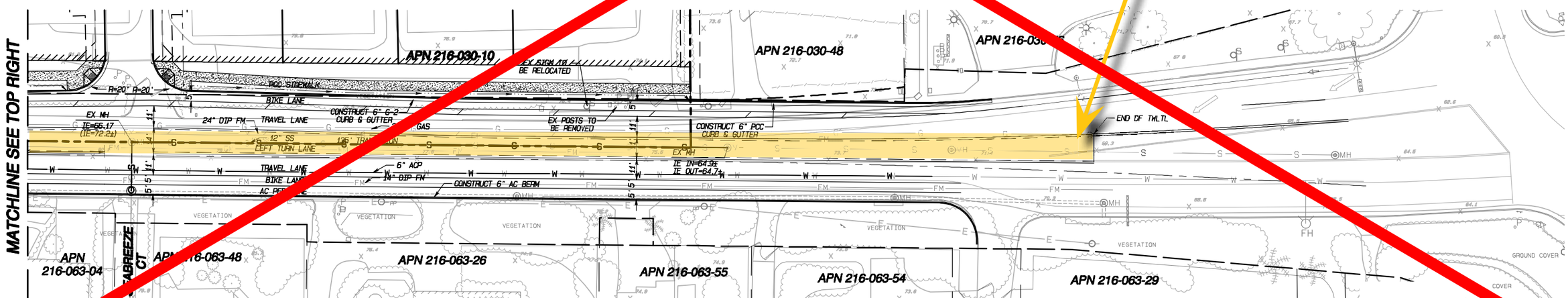
TABLE 3.10-10 EXISTING PLUS CUMULATIVE PLUS PROJECT SEGMENT VOLUMES AND OPERATIONS

Segment	Classification (as built)	Existing + Cumulative Daily Volume	LOS E Capacity	V/C	LOS	Project Daily Volumes	Existing + Cumulative + Project Daily Volume	LOS E Capacity	V/C	LOS	V/C Delta	Cumulative Impact?
La Costa Ave												
N. Coast Hwy 101 to N. Vulcan	4 Ln Collector (2U)	14,042	14,000	1.003	F	78	14,120	14,000	1.009	F	0.006	No
N. Vulcan to Sheridan	4 Ln Collector (2U)	15,935	14,000	1.138	F	92	16,027	14,000	1.145	F	0.007	No
Sheridan to Seabreeze	4 Ln Collector (2U)	17,487	14,000	1.249	F	92	17,579	14,000	1.256	F	0.007	No
Seabreeze to I-5	4 Ln Collector (2U Aug)	17,600	20,000	0.880	D	368	17,968	20,000	0.898	D	0.018	No

Notes: Classification (as built): 2U Aug = 2 lane undivided augmented roadway. Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Volume to Capacity ratio. Cumulative Impact (yes or no).



Striped center two-way left-turn lane



Michael Baker INTERNATIONAL

N

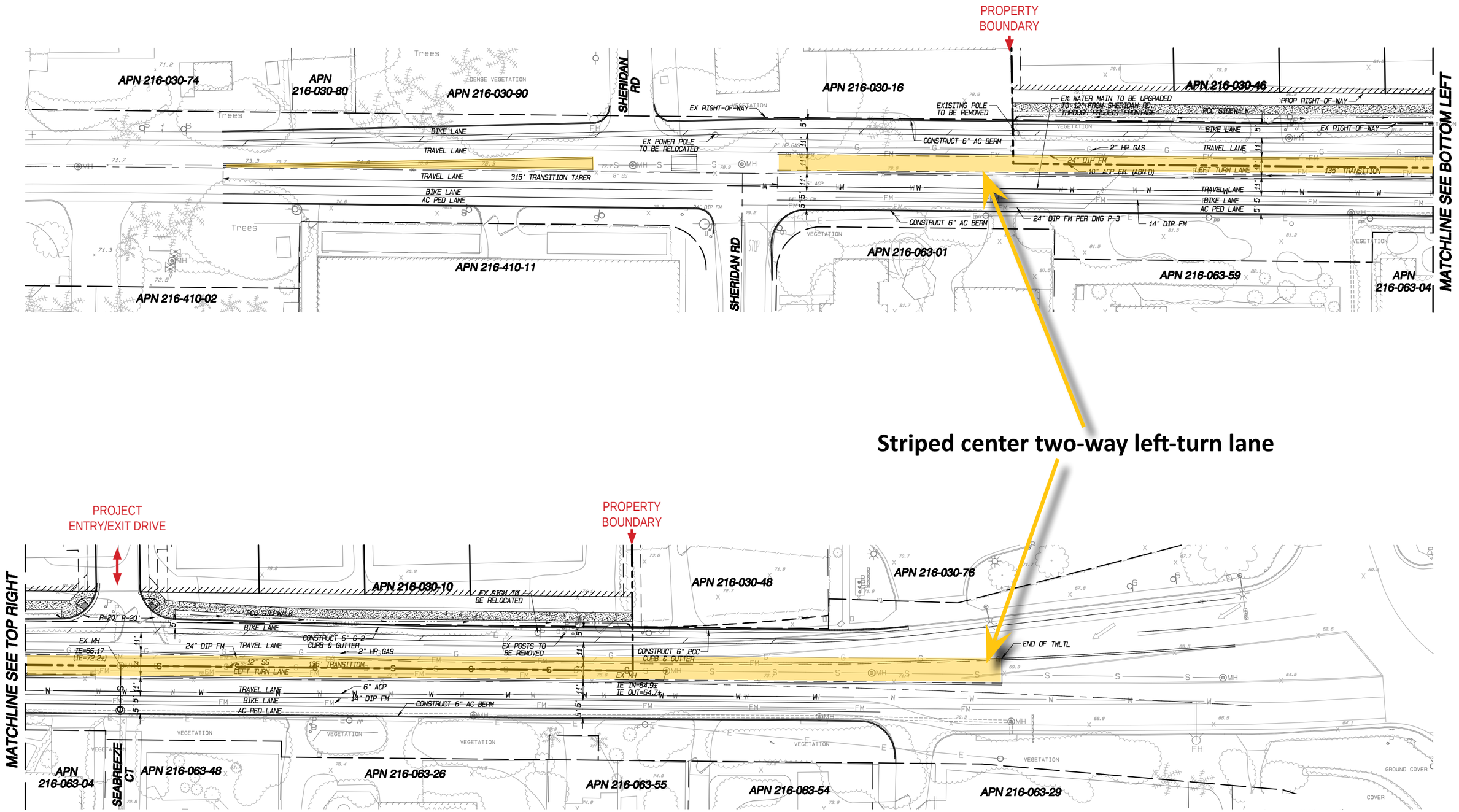
Source: LOS Engineering, Inc., 2018
163631Exhibits.indd

Weston Subdivision Project

PROPOSED MITIGATION (LA COSTA IMPROVEMENTS AND STRIPING WITH TWLTL)

Figure 3.10-1

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Michael Baker INTERNATIONAL

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Source: LOS Engineering, Inc., 2018
163631Exhibits.indd

Weston Subdivision Project

PROPOSED MITIGATION (LA COSTA IMPROVEMENTS AND STRIPING WITH TWLTL)

Figure 3.10-1

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Mitigation Measures

Implement mitigation measure **TRA-1**.

Level of Significance After Mitigation

Less than significant. The proposed improvements to La Costa Avenue between Seabreeze Court and I-5 would improve the intersection operations, resulting in a less than significant impact (refer to Table 23 in Appendix 3.10).

Issue 3: Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

The project proposes the subdivision of an approximately 13.9-acre site in Encinitas into 48 single-family residential lots, two open space lots, and one private street. A change in air traffic patterns would not occur as a result of the proposed project. Therefore, **no impact** would occur.

Mitigation Measures

None required

Level of Significance After Mitigation

No impact

Issue 4: Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

The proposed project would not include sharp curves or dangerous intersections. Instead, the site would be improved with high visibility driveway ingress and egress and sidewalks. A 5-foot-wide sidewalk is proposed along the project frontage onto La Costa Avenue. No changes would be made to the alignment of existing streets. Implementation of mitigation measure **TRA-1**, required for impacts described above, would further improve circulation and ensure hazards do not result from the proposed project. Therefore, the proposed project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). Impacts would be **less than significant**.

Mitigation Measures

None required

Level of Significance After Mitigation

Less than significant

Issue 5: Result in inadequate emergency access.

As discussed in Issue 4 above, a 16-foot-wide emergency vehicle access easement is proposed to ensure adequate emergency vehicle circulation and turnaround (refer to Figure 1-3A in Appendix 3.10). The project would not alter any established emergency vehicle routes or otherwise interfere with emergency access. Impacts would be **less than significant**.

Mitigation Measures

None required

Level of Significance After Mitigation

Less than significant

Issue 6: Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

The project has been designed to provide access to alternative means of transportation and to encourage and entice residents of and visitors to the project site to utilize such modes of travel. Private 5-foot-wide (decomposed granite surface) pedestrian pathways are proposed along all internal streets in the subdivision for purposes of circulation and recreation. A pedestrian easement (decomposed granite surface) is also proposed through the northern portion of the site, trending east–west between several residential lots. This easement would facilitate pedestrian movement between Lot 51 and the end of the western cul-de-sac.

A 5-foot-wide sidewalk is proposed along the project frontage onto La Costa Avenue. The proposed sidewalk would connect to an existing sidewalk that extends to the east of the site. No existing sidewalk is located on La Costa Avenue to the west of the project site; therefore, no connection to the pedestrian circulation system would be made. In addition, the project proposes a 5-foot-wide bike lane between La Costa Avenue and the project site.

The project would be in conformance with adopted policies, plans, and programs regarding public transit, bicycle, and pedestrian facilities, and would not otherwise decrease the performance or safety of such facilities. Thus, the project would not result in a conflict with the City's General Plan supporting alternative transportation modes. Impacts would be **less than significant**.

Mitigation Measures

None required

Level of Significance After Mitigation

Less than significant

3.10.4 Cumulative Impact Analysis

The geographic scope for cumulative traffic impacts includes the projects in Table 2-3 (see Section 2.0, Project Description). Development of these cumulative projects would have the potential to contribute to a cumulative increase in traffic volumes along La Costa Avenue, I-5, and other nearby roads. Such cumulative traffic volumes have been incorporated into the TIA via modeling of Existing plus Project and cumulative conditions.

Cumulative Impact Analysis

As discussed in Issue 2 the project would contribute to an identified cumulative impact at the intersection of La Costa Avenue and Seabreeze Court. Since the project would result in a direct impact at this intersection (refer to Issue 1 discussion), it is to be expected that the addition of cumulative traffic from area growth (see Table 2-3 in Section 2.0, Project Description) would compound that impact. However, with implementation of mitigation measure **TRA-1**, the project's contribution to this cumulative impact would be **less than cumulatively considerable**.

Table 3.10-10 shows that while the four study street segments would operate at LOS D or F under the cumulative scenario, the addition of project traffic would not result in a significant cumulative traffic impact. Accordingly, the project's contribution to a cumulative impact to street segments would be considered **less than cumulatively considerable**.

Mitigation Measures

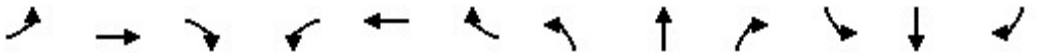
Implement mitigation measure **TRA-1**.

Level of Significance After Mitigation

Less than significant. The proposed improvements to La Costa Avenue between Seabreeze Court and I-5 would improve the intersection operations, resulting in a less than significant impact (refer to Table 23 in Appendix 3.10).

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Appendix H
Peak Hour Intersection Capacity Worksheets
Near-Term Base Conditions



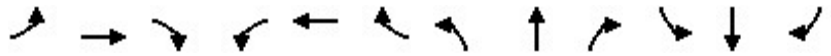
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	540	214	512	518	0	0	0	0	144	4	86
Future Volume (veh/h)	0	540	214	512	518	0	0	0	0	144	4	86
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	614	195	533	540	0				155	0	73
Peak Hour Factor	0.88	0.88	0.88	0.96	0.96	0.96				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	1017	444	743	2228	0				405	0	180
Arrive On Green	0.00	0.29	0.29	0.22	0.63	0.00				0.11	0.00	0.11
Sat Flow, veh/h	0	3618	1539	3428	3618	0				3534	0	1572
Grp Volume(v), veh/h	0	614	195	533	540	0				155	0	73
Grp Sat Flow(s),veh/h/ln	0	1763	1539	1714	1763	0				1767	0	1572
Q Serve(g_s), s	0.0	6.0	4.2	5.8	2.7	0.0				1.6	0.0	1.7
Cycle Q Clear(g_c), s	0.0	6.0	4.2	5.8	2.7	0.0				1.6	0.0	1.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1017	444	743	2228	0				405	0	180
V/C Ratio(X)	0.00	0.60	0.44	0.72	0.24	0.00				0.38	0.00	0.41
Avail Cap(c_a), veh/h	0	3504	1530	2130	6141	0				2196	0	977
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.3	11.7	14.6	3.2	0.0				16.5	0.0	16.5
Incr Delay (d2), s/veh	0.0	0.2	0.3	0.5	0.0	0.0				0.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.9	1.2	1.8	0.3	0.0				0.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.5	11.9	15.1	3.2	0.0				16.7	0.0	17.1
LnGrp LOS	A	B	B	B	A	A				B	A	B
Approach Vol, veh/h		809			1073						228	
Approach Delay, s/veh		12.4			9.1						16.8	
Approach LOS		B			A						B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	13.8	16.7		9.7		30.5
Change Period (Y+Rc), s	5.1	5.1		5.1		5.1
Max Green Setting (Gmax), s	25.0	40.0		25.0		70.1
Max Q Clear Time (g_c+I1), s	7.8	8.0		3.7		4.7
Green Ext Time (p_c), s	0.9	3.4		0.4		2.3

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

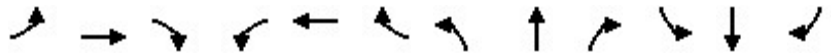


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	524	0	0	884	347	132	31	284	0	0	0
Future Volume (veh/h)	168	524	0	0	884	347	132	31	284	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	198	616	0	0	971	347	92	115	259			
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.88	0.88	0.88			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	235	2679	0	0	2085	744	198	208	353			
Arrive On Green	0.13	0.76	0.00	0.00	1.00	1.00	0.11	0.11	0.11			
Sat Flow, veh/h	1767	3618	0	0	3824	1305	1767	1856	3145			
Grp Volume(v), veh/h	198	616	0	0	897	421	92	115	259			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1689	1585	1767	1856	1572			
Q Serve(g_s), s	9.8	4.6	0.0	0.0	0.0	0.0	4.4	5.3	7.2			
Cycle Q Clear(g_c), s	9.8	4.6	0.0	0.0	0.0	0.0	4.4	5.3	7.2			
Prop In Lane	1.00		0.00	0.00		0.82	1.00		1.00			
Lane Grp Cap(c), veh/h	235	2679	0	0	1925	904	198	208	353			
V/C Ratio(X)	0.84	0.23	0.00	0.00	0.47	0.47	0.46	0.55	0.73			
Avail Cap(c_a), veh/h	530	2679	0	0	1925	904	412	433	734			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.85	0.85	0.00	0.00	0.95	0.95	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.1	3.1	0.0	0.0	0.0	0.0	37.4	37.8	38.6			
Incr Delay (d2), s/veh	2.7	0.2	0.0	0.0	0.8	1.6	0.6	0.8	1.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.3	1.1	0.0	0.0	0.2	0.4	1.9	2.4	2.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.8	3.3	0.0	0.0	0.8	1.6	38.0	38.7	39.8			
LnGrp LOS	D	A	A	A	A	A	D	D	D			
Approach Vol, veh/h		814			1318			466				
Approach Delay, s/veh		12.4			1.0			39.1				
Approach LOS		B			A			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		74.8			17.1	57.7		15.2				
Change Period (Y+Rc), s		6.4			5.1	6.4		5.1				
Max Green Setting (Gmax), s		57.5			27.0	25.4		21.0				
Max Q Clear Time (g_c+I1), s		6.6			11.8	2.0		9.2				
Green Ext Time (p_c), s		2.7			0.2	6.3		0.9				

Intersection Summary	
HCM 6th Ctrl Delay	11.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



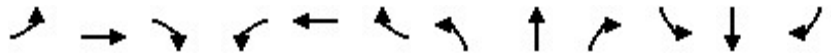
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	785	10	28	1068	21	44	3	28	105	5	102
Future Volume (veh/h)	18	785	10	28	1068	21	44	3	28	105	5	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	20	892	10	30	1136	20	59	4	34	109	5	96
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.74	0.74	0.74	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	31	1376	15	564	3624	64	182	23	197	239	11	207
Arrive On Green	0.03	0.77	0.77	0.32	0.71	0.71	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1767	3570	40	1767	5123	90	1278	167	1421	1351	78	1497
Grp Volume(v), veh/h	20	440	462	30	749	407	59	0	38	109	0	101
Grp Sat Flow(s),veh/h/ln	1767	1763	1847	1767	1689	1837	1278	0	1589	1351	0	1575
Q Serve(g_s), s	1.0	10.3	10.3	1.1	7.5	7.5	4.0	0.0	1.9	7.0	0.0	5.3
Cycle Q Clear(g_c), s	1.0	10.3	10.3	1.1	7.5	7.5	9.3	0.0	1.9	8.9	0.0	5.3
Prop In Lane	1.00		0.02	1.00		0.05	1.00		0.89	1.00		0.95
Lane Grp Cap(c), veh/h	31	680	712	564	2389	1299	182	0	220	239	0	218
V/C Ratio(X)	0.65	0.65	0.65	0.05	0.31	0.31	0.32	0.00	0.17	0.46	0.00	0.46
Avail Cap(c_a), veh/h	285	680	712	564	2389	1299	381	0	468	449	0	464
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	0.78	0.78	0.78	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.2	7.5	7.5	21.2	5.0	5.0	40.0	0.0	34.2	38.1	0.0	35.7
Incr Delay (d2), s/veh	7.8	4.5	4.3	0.0	0.3	0.5	0.4	0.0	0.1	0.5	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.0	3.1	0.4	2.0	2.3	1.3	0.0	0.7	2.3	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	12.0	11.8	21.2	5.2	5.4	40.4	0.0	34.3	38.6	0.0	36.3
LnGrp LOS	D	B	B	C	A	A	D	A	C	D	A	D
Approach Vol, veh/h		922			1186			97			210	
Approach Delay, s/veh		12.8			5.7			38.0			37.5	
Approach LOS		B			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.0	40.0		16.0	5.1	69.0		16.0
Change Period (Y+Rc), s	5.3	* 5.3		3.5	3.5	5.3		3.5
Max Green Setting (Gmax), s	16.5	* 35		26.5	14.5	36.7		26.5
Max Q Clear Time (g_c+I1), s	3.1	12.3		10.9	3.0	9.5		11.3
Green Ext Time (p_c), s	0.0	6.7		0.5	0.0	9.9		0.2

Intersection Summary	
HCM 6th Ctrl Delay	12.5
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



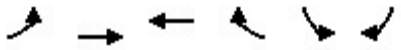
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	736	178	287	1004	26	90	36	110	36	278	38
Future Volume (veh/h)	21	736	178	287	1004	26	90	36	110	36	278	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	23	809	176	315	1103	26	106	42	116	40	309	38
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.85	0.85	0.85	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	33	967	210	350	1819	43	134	115	319	51	352	43
Arrive On Green	0.02	0.34	0.34	0.20	0.52	0.52	0.08	0.27	0.27	0.03	0.22	0.22
Sat Flow, veh/h	1767	2863	623	1767	3518	83	1767	435	1202	1767	1617	199
Grp Volume(v), veh/h	23	498	487	315	553	576	106	0	158	40	0	347
Grp Sat Flow(s),veh/h/ln	1767	1763	1723	1767	1763	1838	1767	0	1638	1767	0	1816
Q Serve(g_s), s	1.3	26.3	26.3	17.6	22.3	22.3	6.0	0.0	7.9	2.3	0.0	18.6
Cycle Q Clear(g_c), s	1.3	26.3	26.3	17.6	22.3	22.3	6.0	0.0	7.9	2.3	0.0	18.6
Prop In Lane	1.00		0.36	1.00		0.05	1.00		0.73	1.00		0.11
Lane Grp Cap(c), veh/h	33	595	582	350	911	950	134	0	434	51	0	396
V/C Ratio(X)	0.69	0.84	0.84	0.90	0.61	0.61	0.79	0.00	0.36	0.79	0.00	0.88
Avail Cap(c_a), veh/h	350	1572	1536	1051	2271	2368	613	0	719	438	0	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.2	30.9	30.9	39.5	17.2	17.2	45.8	0.0	30.2	48.7	0.0	38.2
Incr Delay (d2), s/veh	9.1	2.4	2.5	3.4	0.5	0.5	3.9	0.0	0.2	9.6	0.0	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	11.0	10.7	7.7	8.3	8.7	2.7	0.0	3.1	1.1	0.0	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.3	33.3	33.3	42.9	17.6	17.6	49.7	0.0	30.4	58.3	0.0	43.3
LnGrp LOS	E	C	C	D	B	B	D	A	C	E	A	D
Approach Vol, veh/h		1008			1444			264			387	
Approach Delay, s/veh		33.9			23.1			38.1			44.9	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	39.4	11.2	26.9	5.4	57.5	6.4	31.6
Change Period (Y+Rc), s	3.5	5.3	3.5	* 4.9	3.5	5.3	3.5	4.9
Max Green Setting (Gmax), s	10.0	90.0	35.0	* 35	20.0	130.0	25.0	44.3
Max Q Clear Time (g_c+I1), s	19.6	28.3	8.0	20.6	3.3	24.3	4.3	9.9
Green Ext Time (p_c), s	0.4	5.7	0.1	1.2	0.0	6.8	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	30.6
HCM 6th LOS	C

Notes

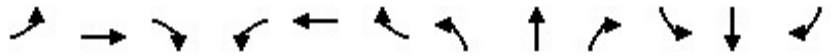
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	894	1268	11	18	11
Future Volume (veh/h)	9	894	1268	11	18	11
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	9	941	1349	11	25	12
Peak Hour Factor	0.95	0.95	0.94	0.94	0.72	0.72
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	16	3086	2965	24	47	42
Arrive On Green	0.01	0.88	1.00	1.00	0.03	0.03
Sat Flow, veh/h	1767	3618	3676	29	1767	1572
Grp Volume(v), veh/h	9	941	663	697	25	12
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1850	1767	1572
Q Serve(g_s), s	0.5	4.1	0.0	0.0	1.3	0.7
Cycle Q Clear(g_c), s	0.5	4.1	0.0	0.0	1.3	0.7
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	16	3086	1459	1531	47	42
V/C Ratio(X)	0.57	0.30	0.45	0.46	0.53	0.28
Avail Cap(c_a), veh/h	285	3086	1459	1531	560	498
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.43	0.43	0.72	0.72	1.00	1.00
Uniform Delay (d), s/veh	44.4	1.0	0.0	0.0	43.2	42.9
Incr Delay (d2), s/veh	5.0	0.1	0.7	0.7	3.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.3	0.3	0.6	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	49.5	1.1	0.7	0.7	46.6	44.3
LnGrp LOS	D	A	A	A	D	D
Approach Vol, veh/h		950	1360		37	
Approach Delay, s/veh		1.5	0.7		45.8	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		84.1		5.9	4.3	79.8
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		52.7		28.5	14.5	34.7
Max Q Clear Time (g_c+I1), s		6.1		3.3	2.5	2.0
Green Ext Time (p_c), s		7.7		0.0	0.0	13.6

Intersection Summary	
HCM 6th Ctrl Delay	1.8
HCM 6th LOS	A



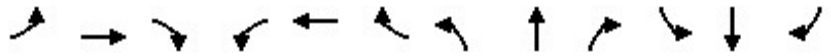
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	676	152	421	1125	39	122	34	241	53	90	14
Future Volume (veh/h)	18	676	152	421	1125	39	122	34	241	53	90	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	20	768	150	458	1223	31	133	37	45	61	103	5
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	458	793	155	645	1322	34	108	189	156	78	158	132
Arrive On Green	0.52	0.54	0.54	0.36	0.38	0.38	0.06	0.10	0.10	0.04	0.09	0.09
Sat Flow, veh/h	1767	2925	571	1767	3511	89	1767	1856	1529	1767	1856	1550
Grp Volume(v), veh/h	20	463	455	458	614	640	133	37	45	61	103	5
Grp Sat Flow(s),veh/h/ln	1767	1763	1733	1767	1763	1837	1767	1856	1529	1767	1856	1550
Q Serve(g_s), s	0.5	22.8	22.8	20.0	30.0	30.0	5.5	1.6	1.2	3.1	4.8	0.2
Cycle Q Clear(g_c), s	0.5	22.8	22.8	20.0	30.0	30.0	5.5	1.6	1.2	3.1	4.8	0.2
Prop In Lane	1.00		0.33	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	458	478	470	645	664	692	108	189	156	78	158	132
V/C Ratio(X)	0.04	0.97	0.97	0.71	0.92	0.93	1.23	0.20	0.29	0.78	0.65	0.04
Avail Cap(c_a), veh/h	458	478	470	645	664	692	108	567	467	98	557	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	0.59	0.59	0.59	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	20.2	20.2	24.5	26.8	26.8	42.3	37.0	9.0	42.6	39.9	14.3
Incr Delay (d2), s/veh	0.0	33.2	33.6	1.9	13.9	13.5	161.4	0.2	0.4	26.5	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	9.6	9.5	7.9	13.9	14.4	7.2	0.7	0.9	1.9	2.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.2	53.5	53.8	26.4	40.7	40.4	203.7	37.2	9.3	69.1	41.6	14.3
LnGrp LOS	B	D	D	C	D	D	F	D	A	E	D	B
Approach Vol, veh/h		938			1712			215			169	
Approach Delay, s/veh		52.8			36.8			134.3			50.7	
Approach LOS		D			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	36.3	31.1	10.0	12.6	26.8	40.6	8.5	14.1
Change Period (Y+Rc), s	3.5	6.7	4.5	4.9	3.5	6.7	4.5	4.9
Max Green Setting (Gmax), s	13.5	24.4	5.5	27.0	4.0	33.9	5.0	27.5
Max Q Clear Time (g_c+I1), s	22.0	24.8	7.5	6.8	2.5	32.0	5.1	3.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.3	0.0	1.4	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	49.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	650	203	184	1105	9	163	105	33	12	312	309
Future Volume (veh/h)	123	650	203	184	1105	9	163	105	33	12	312	309
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	143	756	213	214	1285	9	209	135	38	14	376	335
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.78	0.78	0.78	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	1185	334	592	2041	14	260	637	173	41	300	264
Arrive On Green	0.06	0.44	0.44	0.06	0.19	0.19	0.08	0.23	0.23	0.01	0.17	0.17
Sat Flow, veh/h	3428	2706	763	3428	3589	25	3428	2730	742	3428	1772	1562
Grp Volume(v), veh/h	143	492	477	214	631	663	209	85	88	14	374	337
Grp Sat Flow(s),veh/h/ln	1714	1763	1706	1714	1763	1851	1714	1763	1709	1714	1763	1571
Q Serve(g_s), s	5.7	30.5	30.5	8.4	46.2	46.2	8.4	5.5	5.8	0.6	23.7	23.7
Cycle Q Clear(g_c), s	5.7	30.5	30.5	8.4	46.2	46.2	8.4	5.5	5.8	0.6	23.7	23.7
Prop In Lane	1.00		0.45	1.00		0.01	1.00		0.43	1.00		0.99
Lane Grp Cap(c), veh/h	197	772	747	592	1002	1053	260	411	399	41	298	266
V/C Ratio(X)	0.72	0.64	0.64	0.36	0.63	0.63	0.80	0.21	0.22	0.34	1.25	1.27
Avail Cap(c_a), veh/h	575	772	747	592	1002	1053	453	411	399	453	298	266
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.77	0.77	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.9	30.7	30.7	58.6	43.3	43.3	63.7	43.3	43.4	68.6	58.1	58.2
Incr Delay (d2), s/veh	3.9	3.1	3.2	0.3	2.4	2.3	2.2	0.1	0.1	1.8	138.5	146.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	13.2	12.8	3.8	22.4	23.5	3.7	2.4	2.5	0.3	21.9	20.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.7	33.8	33.9	58.9	45.7	45.6	65.9	43.4	43.5	70.4	196.6	204.7
LnGrp LOS	E	C	C	E	D	D	E	D	D	E	F	F
Approach Vol, veh/h		1112			1508			382			725	
Approach Delay, s/veh		38.3			47.5			55.7			198.0	
Approach LOS		D			D			E			F	

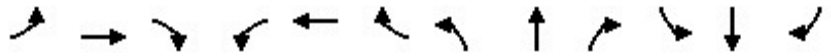
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	67.0	14.1	29.0	11.6	85.3	5.2	37.9
Change Period (Y+Rc), s	5.7	* 5.7	3.5	5.3	3.5	5.7	3.5	5.3
Max Green Setting (Gmax), s	18.5	* 61	18.5	23.7	23.5	56.3	18.5	23.7
Max Q Clear Time (g_c+I1), s	10.4	32.5	10.4	25.7	7.7	48.2	2.6	7.8
Green Ext Time (p_c), s	0.4	6.4	0.2	0.0	0.3	4.7	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	74.9
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	595	60	127	1196	117	61	15	74	47	18	79
Future Volume (veh/h)	28	595	60	127	1196	117	61	15	74	47	18	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	34	717	58	151	1424	110	38	48	61	38	44	74
Peak Hour Factor	0.83	0.83	0.83	0.84	0.84	0.84	0.98	0.98	0.98	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	72	1453	737	1105	2561	1238	110	116	96	125	131	107
Arrive On Green	0.04	0.82	0.82	0.32	0.73	0.73	0.06	0.06	0.06	0.07	0.07	0.07
Sat Flow, veh/h	3428	3526	1551	3428	3526	1552	1767	1856	1542	1767	1856	1523
Grp Volume(v), veh/h	34	717	58	151	1424	110	38	48	61	38	44	74
Grp Sat Flow(s),veh/h/ln	1714	1763	1551	1714	1763	1552	1767	1856	1542	1767	1856	1523
Q Serve(g_s), s	1.4	8.4	0.9	4.4	26.0	2.2	2.9	3.5	5.4	2.9	3.2	6.6
Cycle Q Clear(g_c), s	1.4	8.4	0.9	4.4	26.0	2.2	2.9	3.5	5.4	2.9	3.2	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	1453	737	1105	2561	1238	110	116	96	125	131	107
V/C Ratio(X)	0.47	0.49	0.08	0.14	0.56	0.09	0.35	0.42	0.64	0.31	0.34	0.69
Avail Cap(c_a), veh/h	478	1453	737	1105	2561	1238	278	292	242	278	292	239
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.71	0.71	0.29	0.29	0.29	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.3	8.0	5.9	33.6	8.8	3.1	62.9	63.2	64.1	61.8	61.9	63.6
Incr Delay (d2), s/veh	1.3	0.9	0.1	0.0	0.3	0.0	0.7	0.9	2.6	0.5	0.6	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.4	0.4	1.8	8.6	0.9	1.3	1.7	2.2	1.3	1.5	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.6	8.8	6.0	33.6	9.1	3.2	63.6	64.1	66.7	62.3	62.5	66.5
LnGrp LOS	E	A	A	C	A	A	E	E	E	E	E	E
Approach Vol, veh/h		809			1685			147			156	
Approach Delay, s/veh		11.1			10.9			65.0			64.4	
Approach LOS		B			B			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.4	63.0		13.9	6.4	107.0		12.7
Change Period (Y+Rc), s	5.3	* 5.3		4.0	3.5	5.3		4.0
Max Green Setting (Gmax), s	21.5	* 58		22.0	19.5	59.7		22.0
Max Q Clear Time (g_c+I1), s	6.4	10.4		8.6	3.4	28.0		7.4
Green Ext Time (p_c), s	0.2	11.4		0.2	0.0	22.2		0.2

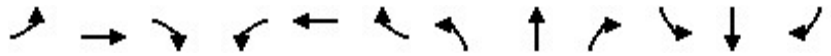
Intersection Summary	
HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	430	109	983	1156	111	78	577	414	100	1585	148
Future Volume (veh/h)	124	430	109	983	1156	111	78	577	414	100	1585	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	133	462	95	1080	1270	111	93	687	394	106	1686	143
Peak Hour Factor	0.93	0.93	0.93	0.91	0.91	0.91	0.84	0.84	0.84	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	534	1585	483	451	1302	114	238	1794	754	155	1922	163
Arrive On Green	0.05	0.10	0.10	0.13	0.28	0.28	0.07	0.35	0.35	0.05	0.32	0.32
Sat Flow, veh/h	3428	5066	1545	3428	4735	414	3428	5066	1546	3428	6037	512
Grp Volume(v), veh/h	133	462	95	1080	906	475	93	687	394	106	1337	492
Grp Sat Flow(s),veh/h/ln	1714	1689	1545	1714	1689	1772	1714	1689	1546	1714	1596	1762
Q Serve(g_s), s	5.2	11.8	6.0	18.4	37.2	37.2	3.6	14.2	24.6	4.3	37.0	37.0
Cycle Q Clear(g_c), s	5.2	11.8	6.0	18.4	37.2	37.2	3.6	14.2	24.6	4.3	37.0	37.0
Prop In Lane	1.00		1.00	1.00		0.23	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	534	1585	483	451	929	487	238	1794	754	155	1524	561
V/C Ratio(X)	0.25	0.29	0.20	2.40	0.98	0.98	0.39	0.38	0.52	0.68	0.88	0.88
Avail Cap(c_a), veh/h	534	1585	483	451	929	487	316	1794	754	1014	1566	576
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	48.4	27.4	60.8	50.3	50.3	62.3	33.8	24.9	65.9	45.1	45.1
Incr Delay (d2), s/veh	0.1	0.4	0.9	635.4	24.1	35.1	1.3	0.2	0.8	2.0	6.0	14.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	5.3	3.1	47.5	18.2	20.6	1.6	5.7	8.7	1.9	15.0	17.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	48.9	28.3	696.2	74.4	85.4	63.6	33.9	25.6	67.8	51.1	59.4
LnGrp LOS	E	D	C	F	E	F	E	C	C	E	D	E
Approach Vol, veh/h		690			2461			1174			1935	
Approach Delay, s/veh		47.9			349.4			33.5			54.1	
Approach LOS		D			F			C			D	

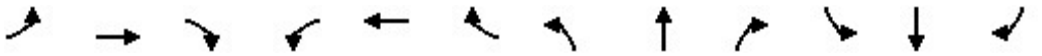
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	55.8	23.0	50.3	15.9	50.8	28.3	45.0
Change Period (Y+Rc), s	4.6	6.2	4.6	6.5	6.2	* 6.2	6.5	* 6.5
Max Green Setting (Gmax), s	4.4	17.8	18.4	40.5	12.9	* 46	20.4	* 39
Max Q Clear Time (g_c+I1), s	6.3	26.6	20.4	13.8	5.6	39.0	7.2	39.2
Green Ext Time (p_c), s	0.2	0.0	0.0	3.9	0.1	5.6	0.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	165.7
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



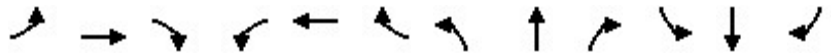
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	657	178	306	597	0	0	0	0	314	4	138
Future Volume (veh/h)	0	657	178	306	597	0	0	0	0	314	4	138
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	684	148	326	635	0				323	0	112
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94				0.98	0.98	0.98
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	1053	462	639	2138	0				532	0	237
Arrive On Green	0.00	0.30	0.30	0.19	0.61	0.00				0.15	0.00	0.15
Sat Flow, veh/h	0	3618	1545	3428	3618	0				3534	0	1572
Grp Volume(v), veh/h	0	684	148	326	635	0				323	0	112
Grp Sat Flow(s),veh/h/ln	0	1763	1545	1714	1763	0				1767	0	1572
Q Serve(g_s), s	0.0	7.1	3.1	3.6	3.6	0.0				3.6	0.0	2.7
Cycle Q Clear(g_c), s	0.0	7.1	3.1	3.6	3.6	0.0				3.6	0.0	2.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1053	462	639	2138	0				532	0	237
V/C Ratio(X)	0.00	0.65	0.32	0.51	0.30	0.00				0.61	0.00	0.47
Avail Cap(c_a), veh/h	0	2519	1104	2041	5046	0				2104	0	936
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.8	11.4	15.4	4.0	0.0				16.7	0.0	16.3
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.2	0.0	0.0				0.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.3	0.9	1.2	0.7	0.0				1.3	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.1	11.6	15.6	4.0	0.0				17.1	0.0	16.9
LnGrp LOS	A	B	B	B	A	A				B	A	B
Approach Vol, veh/h		832			961						435	
Approach Delay, s/veh		12.8			7.9						17.0	
Approach LOS		B			A						B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	12.9	17.6		11.4		30.6
Change Period (Y+Rc), s	5.1	5.1		5.1		5.1
Max Green Setting (Gmax), s	25.0	30.0		25.0		60.1
Max Q Clear Time (g_c+I1), s	5.6	9.1		5.6		5.6
Green Ext Time (p_c), s	0.6	3.5		0.8		3.2

Intersection Summary	
HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

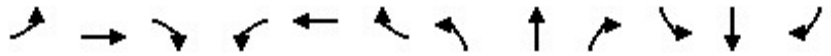


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	803	0	0	765	418	194	99	456	0	0	0
Future Volume (veh/h)	134	803	0	0	765	418	194	99	456	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	161	967	0	0	797	394	164	186	411			
Peak Hour Factor	0.83	0.83	0.83	0.96	0.96	0.96	0.89	0.89	0.89			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	196	2489	0	0	1818	822	294	308	522			
Arrive On Green	0.11	0.71	0.00	0.00	0.54	0.54	0.17	0.17	0.17			
Sat Flow, veh/h	1767	3618	0	0	3544	1527	1767	1856	3145			
Grp Volume(v), veh/h	161	967	0	0	797	394	164	186	411			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1689	1527	1767	1856	1572			
Q Serve(g_s), s	8.0	10.0	0.0	0.0	12.8	14.5	7.7	8.4	11.3			
Cycle Q Clear(g_c), s	8.0	10.0	0.0	0.0	12.8	14.5	7.7	8.4	11.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	196	2489	0	0	1818	822	294	308	522			
V/C Ratio(X)	0.82	0.39	0.00	0.00	0.44	0.48	0.56	0.60	0.79			
Avail Cap(c_a), veh/h	432	2489	0	0	1818	822	511	536	909			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.77	0.77	0.00	0.00	0.96	0.96	1.00	1.00	1.00			
Uniform Delay (d), s/veh	39.1	5.4	0.0	0.0	12.6	12.9	34.5	34.8	36.0			
Incr Delay (d2), s/veh	2.5	0.4	0.0	0.0	0.7	1.9	0.6	0.7	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.6	3.1	0.0	0.0	4.5	4.8	3.3	3.8	4.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	5.7	0.0	0.0	13.3	14.8	35.1	35.5	37.0			
LnGrp LOS	D	A	A	A	B	B	D	D	D			
Approach Vol, veh/h		1128			1191			761				
Approach Delay, s/veh		10.8			13.8			36.2				
Approach LOS		B			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		70.0			15.1	54.9		20.0				
Change Period (Y+Rc), s		6.4			5.1	6.4		5.1				
Max Green Setting (Gmax), s		52.5			22.0	25.4		26.0				
Max Q Clear Time (g_c+I1), s		12.0			10.0	16.5		13.3				
Green Ext Time (p_c), s		5.4			0.2	3.7		1.7				

Intersection Summary	
HCM 6th Ctrl Delay	18.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	1195	28	59	1126	29	22	2	18	53	1	45
Future Volume (veh/h)	29	1195	28	59	1126	29	22	2	18	53	1	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	30	1219	27	63	1198	28	35	3	26	58	1	44
Peak Hour Factor	0.98	0.98	0.98	0.94	0.94	0.94	0.63	0.63	0.63	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	38	1665	37	579	4040	94	134	13	116	149	3	125
Arrive On Green	0.02	0.47	0.47	0.66	1.00	1.00	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1767	3524	78	1767	5089	119	1346	163	1409	1366	34	1515
Grp Volume(v), veh/h	30	610	636	63	795	431	35	0	29	58	0	45
Grp Sat Flow(s),veh/h/ln	1767	1763	1839	1767	1689	1831	1346	0	1571	1366	0	1550
Q Serve(g_s), s	2.0	33.5	33.5	1.6	0.0	0.0	3.0	0.0	2.1	5.0	0.0	3.3
Cycle Q Clear(g_c), s	2.0	33.5	33.5	1.6	0.0	0.0	6.3	0.0	2.1	7.0	0.0	3.3
Prop In Lane	1.00		0.04	1.00		0.06	1.00		0.90	1.00		0.98
Lane Grp Cap(c), veh/h	38	833	869	579	2681	1453	134	0	129	149	0	128
V/C Ratio(X)	0.80	0.73	0.73	0.11	0.30	0.30	0.26	0.00	0.22	0.39	0.00	0.35
Avail Cap(c_a), veh/h	272	833	869	579	2681	1453	354	0	386	372	0	381
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	0.68	0.68	0.68	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.5	25.5	25.5	14.2	0.0	0.0	55.0	0.0	51.5	54.8	0.0	52.0
Incr Delay (d2), s/veh	11.3	4.8	4.6	0.0	0.2	0.4	0.4	0.0	0.3	0.6	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	14.4	14.9	0.6	0.1	0.1	1.1	0.0	0.8	1.8	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.7	30.3	30.1	14.2	0.2	0.4	55.4	0.0	51.8	55.4	0.0	52.6
LnGrp LOS	E	C	C	B	A	A	E	A	D	E	A	D
Approach Vol, veh/h		1276			1289			64			103	
Approach Delay, s/veh		31.1			0.9			53.8			54.2	
Approach LOS		C			A			D			D	

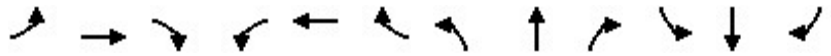
Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.6	62.0		13.4	6.1	100.6		13.4
Change Period (Y+Rc), s	5.3	* 5.3		3.5	3.5	5.3		3.5
Max Green Setting (Gmax), s	21.5	* 57		29.5	18.5	59.7		29.5
Max Q Clear Time (g_c+I1), s	3.6	35.5		9.0	4.0	2.0		8.3
Green Ext Time (p_c), s	0.1	9.9		0.2	0.0	13.1		0.1

Intersection Summary	
HCM 6th Ctrl Delay	18.3
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



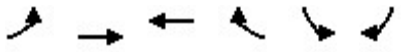
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	1145	97	145	1031	31	136	122	187	26	59	32
Future Volume (veh/h)	45	1145	97	145	1031	31	136	122	187	26	59	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	47	1193	91	159	1133	31	166	149	205	34	77	38
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.82	0.82	0.82	0.77	0.77	0.77
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	458	1655	126	188	1159	32	278	161	221	43	104	51
Arrive On Green	0.52	1.00	1.00	0.04	0.11	0.11	0.16	0.23	0.23	0.02	0.09	0.09
Sat Flow, veh/h	1767	3319	253	1767	3502	96	1767	707	972	1767	1171	578
Grp Volume(v), veh/h	47	633	651	159	570	594	166	0	354	34	0	115
Grp Sat Flow(s),veh/h/ln	1767	1763	1809	1767	1763	1835	1767	0	1679	1767	0	1749
Q Serve(g_s), s	1.6	0.4	0.4	10.7	38.7	38.7	10.5	0.0	24.8	2.3	0.0	7.7
Cycle Q Clear(g_c), s	1.6	0.4	0.4	10.7	38.7	38.7	10.5	0.0	24.8	2.3	0.0	7.7
Prop In Lane	1.00		0.14	1.00		0.05	1.00		0.58	1.00		0.33
Lane Grp Cap(c), veh/h	458	879	902	188	583	607	278	0	381	43	0	155
V/C Ratio(X)	0.10	0.72	0.72	0.84	0.98	0.98	0.60	0.00	0.93	0.79	0.00	0.74
Avail Cap(c_a), veh/h	458	879	902	302	583	607	278	0	421	243	0	449
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	0.91	0.91	0.91	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.8	0.1	0.1	56.9	53.0	53.0	47.0	0.0	45.4	58.2	0.0	53.4
Incr Delay (d2), s/veh	0.0	4.3	4.2	5.6	30.5	29.9	2.5	0.0	24.5	11.2	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.1	1.1	5.3	23.2	24.0	4.8	0.0	12.8	1.2	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8	4.4	4.3	62.5	83.5	82.9	49.5	0.0	69.9	69.5	0.0	56.0
LnGrp LOS	C	A	A	E	F	F	D	A	E	E	A	E
Approach Vol, veh/h		1331			1323			520			149	
Approach Delay, s/veh		4.9			80.7			63.4			59.1	
Approach LOS		A			F			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.3	65.1	23.8	14.8	36.4	45.0	6.4	32.2
Change Period (Y+Rc), s	3.5	5.3	* 4.9	* 4.2	5.3	* 5.3	3.5	4.9
Max Green Setting (Gmax), s	20.5	35.7	* 17	* 31	16.5	* 40	16.5	30.1
Max Q Clear Time (g_c+I1), s	12.7	2.4	12.5	9.7	3.6	40.7	4.3	26.8
Green Ext Time (p_c), s	0.1	8.0	0.1	0.4	0.0	0.0	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	46.7
HCM 6th LOS	D

Notes

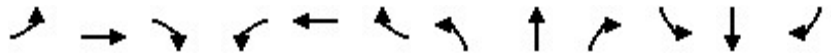
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	1334	1173	15	9	15
Future Volume (veh/h)	35	1334	1173	15	9	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	36	1390	1222	14	13	16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.67	0.67
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	46	3194	3037	35	37	32
Arrive On Green	0.03	1.00	1.00	1.00	0.02	0.02
Sat Flow, veh/h	1767	3618	3662	41	1767	1572
Grp Volume(v), veh/h	36	1390	603	633	13	16
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1847	1767	1572
Q Serve(g_s), s	2.4	0.0	0.0	0.0	0.9	1.2
Cycle Q Clear(g_c), s	2.4	0.0	0.0	0.0	0.9	1.2
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	46	3194	1500	1572	37	32
V/C Ratio(X)	0.79	0.44	0.40	0.40	0.36	0.49
Avail Cap(c_a), veh/h	361	3194	1500	1572	538	478
HCM Platoon Ratio	1.33	1.33	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.51	0.51	0.78	0.78	1.00	1.00
Uniform Delay (d), s/veh	57.6	0.0	0.0	0.0	58.0	58.1
Incr Delay (d2), s/veh	5.6	0.2	0.6	0.6	2.2	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.1	0.3	0.3	0.4	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	63.2	0.2	0.6	0.6	60.1	62.4
LnGrp LOS	E	A	A	A	E	E
Approach Vol, veh/h		1426	1236		29	
Approach Delay, s/veh		1.8	0.6		61.4	
Approach LOS		A	A		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		114.0		6.0	6.6	107.4
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		74.7		36.5	24.5	46.7
Max Q Clear Time (g_c+I1), s		2.0		3.2	4.4	2.0
Green Ext Time (p_c), s		15.0		0.0	0.0	12.9

Intersection Summary		
HCM 6th Ctrl Delay		1.9
HCM 6th LOS		A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	1220	103	208	1068	53	115	70	345	78	53	35
Future Volume (veh/h)	17	1220	103	208	1068	53	115	70	345	78	53	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	18	1284	97	229	1174	53	135	82	53	87	59	32
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.85	0.85	0.85	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	27	1296	98	484	2318	105	149	157	130	109	115	95
Arrive On Green	0.02	0.52	0.52	0.27	0.68	0.68	0.08	0.08	0.08	0.06	0.06	0.06
Sat Flow, veh/h	1767	3322	250	1767	3431	155	1767	1856	1545	1767	1856	1534
Grp Volume(v), veh/h	18	680	701	229	603	624	135	82	53	87	59	32
Grp Sat Flow(s),veh/h/ln	1767	1763	1810	1767	1763	1823	1767	1856	1545	1767	1856	1534
Q Serve(g_s), s	1.2	45.7	46.1	13.0	20.2	20.3	9.1	5.1	2.3	5.8	3.7	2.4
Cycle Q Clear(g_c), s	1.2	45.7	46.1	13.0	20.2	20.3	9.1	5.1	2.3	5.8	3.7	2.4
Prop In Lane	1.00		0.14	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	27	687	706	484	1191	1232	149	157	130	109	115	95
V/C Ratio(X)	0.68	0.99	0.99	0.47	0.51	0.51	0.91	0.52	0.41	0.80	0.51	0.34
Avail Cap(c_a), veh/h	81	687	706	484	1191	1232	149	430	358	137	417	345
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.90	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	28.6	28.7	36.4	9.6	9.6	54.5	52.6	18.5	55.5	54.5	53.9
Incr Delay (d2), s/veh	9.6	30.0	30.5	0.2	1.2	1.2	47.5	1.0	0.8	22.2	1.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	21.9	22.8	5.5	7.0	7.3	6.0	2.4	1.5	3.2	1.8	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.1	58.6	59.3	36.6	10.8	10.8	102.0	53.6	19.2	77.7	55.8	54.7
LnGrp LOS	E	E	E	D	B	B	F	D	B	E	E	D
Approach Vol, veh/h		1399			1456			270			178	
Approach Delay, s/veh		59.1			14.8			71.0			66.3	
Approach LOS		E			B			E			E	

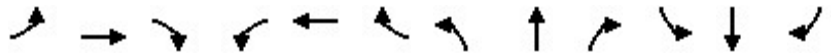
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	53.5	14.6	12.3	5.3	87.7	11.9	15.0
Change Period (Y+Rc), s	6.7	* 6.7	4.5	4.9	3.5	6.7	4.5	4.9
Max Green Setting (Gmax), s	6.5	* 47	10.1	27.0	5.5	57.8	9.3	27.8
Max Q Clear Time (g_c+I1), s	5.0	48.1	11.1	5.7	3.2	22.3	7.8	7.1
Green Ext Time (p_c), s	0.1	0.0	0.0	0.2	0.0	11.6	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	40.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	285	1093	220	61	809	120	284	170	53	60	124	233
Future Volume (veh/h)	285	1093	220	61	809	120	284	170	53	60	124	233
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	310	1188	215	64	843	113	338	202	57	67	139	236
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.84	0.84	0.84	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	368	965	174	900	1545	207	393	650	179	109	273	243
Arrive On Green	0.11	0.32	0.32	0.53	0.99	0.99	0.11	0.24	0.24	0.03	0.16	0.16
Sat Flow, veh/h	3428	2983	537	3428	3123	419	3428	2731	751	3428	1763	1569
Grp Volume(v), veh/h	310	699	704	64	476	480	338	129	130	67	139	236
Grp Sat Flow(s),veh/h/ln	1714	1763	1757	1714	1763	1779	1714	1763	1719	1714	1763	1569
Q Serve(g_s), s	12.4	45.3	45.3	1.3	0.9	0.9	13.6	8.4	8.8	2.7	10.1	20.9
Cycle Q Clear(g_c), s	12.4	45.3	45.3	1.3	0.9	0.9	13.6	8.4	8.8	2.7	10.1	20.9
Prop In Lane	1.00		0.31	1.00		0.24	1.00		0.44	1.00		1.00
Lane Grp Cap(c), veh/h	368	570	569	900	872	880	393	419	409	109	273	243
V/C Ratio(X)	0.84	1.23	1.24	0.07	0.55	0.55	0.86	0.31	0.32	0.62	0.51	0.97
Avail Cap(c_a), veh/h	526	570	569	900	872	880	649	419	409	796	273	243
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.42	0.42	0.42	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	47.3	47.4	24.8	0.4	0.4	60.9	43.9	44.0	66.9	54.3	58.8
Incr Delay (d2), s/veh	3.7	108.2	113.7	0.0	2.3	2.3	3.2	0.2	0.2	2.1	0.7	48.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	36.3	37.1	0.5	0.7	0.7	6.0	3.7	3.7	1.2	4.5	11.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.0	155.5	161.1	24.9	2.7	2.7	64.1	44.0	44.2	69.0	54.9	107.8
LnGrp LOS	E	F	F	C	A	A	E	D	D	E	D	F
Approach Vol, veh/h		1713			1020			597			442	
Approach Delay, s/veh		141.4			4.1			55.4			85.3	
Approach LOS		F			A			E			F	

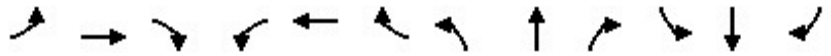
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	51.0	19.5	27.0	18.5	74.9	7.9	38.6
Change Period (Y+Rc), s	5.7	* 5.7	3.5	5.3	3.5	5.7	3.5	5.3
Max Green Setting (Gmax), s	28.5	* 45	26.5	21.7	21.5	52.3	32.5	15.7
Max Q Clear Time (g_c+I1), s	3.3	47.3	15.6	22.9	14.4	2.9	4.7	10.8
Green Ext Time (p_c), s	0.2	0.0	0.5	0.0	0.6	6.6	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	84.1
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	920	211	167	677	174	219	59	262	135	64	88
Future Volume (veh/h)	67	920	211	167	677	174	219	59	262	135	64	88
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	71	968	178	180	728	156	142	174	214	113	129	80
Peak Hour Factor	0.95	0.95	0.95	0.93	0.93	0.93	0.98	0.98	0.98	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	112	874	644	1242	2081	1063	287	302	253	167	175	146
Arrive On Green	0.07	0.50	0.50	0.72	1.00	1.00	0.16	0.16	0.16	0.09	0.09	0.09
Sat Flow, veh/h	3428	3526	1565	3428	3526	1549	1767	1856	1558	1767	1856	1547
Grp Volume(v), veh/h	71	968	178	180	728	156	142	174	214	113	129	80
Grp Sat Flow(s),veh/h/ln	1714	1763	1565	1714	1763	1549	1767	1856	1558	1767	1856	1547
Q Serve(g_s), s	2.8	34.7	8.1	2.3	0.0	0.0	10.2	12.1	18.7	8.7	9.5	6.9
Cycle Q Clear(g_c), s	2.8	34.7	8.1	2.3	0.0	0.0	10.2	12.1	18.7	8.7	9.5	6.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	112	874	644	1242	2081	1063	287	302	253	167	175	146
V/C Ratio(X)	0.63	1.11	0.28	0.14	0.35	0.15	0.49	0.58	0.84	0.68	0.74	0.55
Avail Cap(c_a), veh/h	478	874	644	1242	2081	1063	417	437	367	303	318	265
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.43	0.43	0.43	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.6	35.3	17.9	12.6	0.0	0.0	53.4	54.2	56.9	61.3	61.7	60.5
Incr Delay (d2), s/veh	0.9	56.3	0.5	0.0	0.4	0.3	0.5	0.6	8.0	1.8	2.3	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	17.7	3.4	0.8	0.1	0.1	4.6	5.8	7.9	4.0	4.6	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.5	91.6	18.4	12.6	0.4	0.3	53.9	54.8	64.9	63.1	64.0	61.7
LnGrp LOS	E	F	B	B	A	A	D	D	E	E	E	E
Approach Vol, veh/h		1217			1064			530			322	
Approach Delay, s/veh		79.4			2.5			58.6			63.1	
Approach LOS		E			A			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	56.0	40.0		17.2	8.1	87.9		26.8
Change Period (Y+Rc), s	5.3	* 5.3		4.0	3.5	5.3		4.0
Max Green Setting (Gmax), s	31.5	* 35		24.0	19.5	46.7		33.0
Max Q Clear Time (g_c+I1), s	4.3	36.7		11.5	4.8	2.0		20.7
Green Ext Time (p_c), s	0.3	0.0		0.6	0.1	12.7		1.0

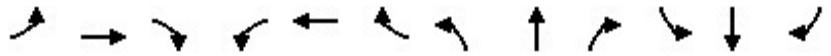
Intersection Summary	
HCM 6th Ctrl Delay	48.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	901	151	502	658	140	172	1415	968	157	849	178
Future Volume (veh/h)	245	901	151	502	658	140	172	1415	968	157	849	178
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	272	1001	136	518	678	130	189	1555	851	176	954	164
Peak Hour Factor	0.90	0.90	0.90	0.97	0.97	0.97	0.91	0.91	0.91	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	323	1140	352	1021	1892	358	248	1114	813	259	1279	217
Arrive On Green	0.09	0.22	0.22	0.30	0.44	0.44	0.07	0.22	0.22	0.08	0.23	0.23
Sat Flow, veh/h	3428	5066	1566	3428	4275	810	3428	5066	1564	3428	5532	937
Grp Volume(v), veh/h	272	1001	136	518	534	274	189	1555	851	176	824	294
Grp Sat Flow(s),veh/h/ln	1714	1689	1566	1714	1689	1708	1714	1689	1564	1714	1596	1681
Q Serve(g_s), s	10.9	26.7	8.3	17.5	14.7	14.9	7.6	30.8	30.8	7.0	22.4	22.8
Cycle Q Clear(g_c), s	10.9	26.7	8.3	17.5	14.7	14.9	7.6	30.8	30.8	7.0	22.4	22.8
Prop In Lane	1.00		1.00	1.00		0.47	1.00		1.00	1.00		0.56
Lane Grp Cap(c), veh/h	323	1140	352	1021	1494	756	248	1114	813	259	1107	389
V/C Ratio(X)	0.84	0.88	0.39	0.51	0.36	0.36	0.76	1.40	1.05	0.68	0.74	0.76
Avail Cap(c_a), veh/h	451	1140	352	1021	1494	756	536	1114	813	793	1395	490
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.68	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.4	52.4	29.4	40.6	25.8	25.9	63.8	54.6	33.7	63.0	50.0	50.2
Incr Delay (d2), s/veh	5.2	6.9	2.2	0.2	0.7	1.4	5.8	183.4	44.7	1.2	1.8	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	11.8	3.2	7.2	5.8	6.1	3.4	31.7	17.1	3.0	8.9	10.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.5	59.3	31.6	40.8	26.5	27.3	69.5	238.0	78.4	64.2	51.8	55.8
LnGrp LOS	E	E	C	D	C	C	E	F	F	E	D	E
Approach Vol, veh/h		1409			1326			2595			1294	
Approach Delay, s/veh		58.2			32.3			173.4			54.4	
Approach LOS		E			C			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.8	37.0	48.2	38.0	15.2	38.6	17.8	68.4
Change Period (Y+Rc), s	6.2	* 6.2	6.5	* 6.5	5.1	6.2	4.6	6.5
Max Green Setting (Gmax), s	12.4	* 31	23.4	* 32	21.9	40.8	18.4	36.5
Max Q Clear Time (g_c+I1), s	19.0	32.8	19.5	28.7	9.6	24.8	12.9	16.9
Green Ext Time (p_c), s	0.3	0.0	0.4	1.9	0.6	7.3	0.2	5.5

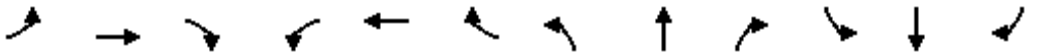
Intersection Summary	
HCM 6th Ctrl Delay	97.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Appendix I
Peak Hour Intersection Capacity Worksheets
Near-Term Base with Project Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	541	214	528	523	0	0	0	0	146	4	86
Future Volume (veh/h)	0	541	214	528	523	0	0	0	0	146	4	86
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	615	195	550	545	0				157	0	73
Peak Hour Factor	0.88	0.88	0.88	0.96	0.96	0.96				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	1015	443	759	2238	0				403	0	179
Arrive On Green	0.00	0.29	0.29	0.22	0.63	0.00				0.11	0.00	0.11
Sat Flow, veh/h	0	3618	1539	3428	3618	0				3534	0	1572
Grp Volume(v), veh/h	0	615	195	550	545	0				157	0	73
Grp Sat Flow(s),veh/h/ln	0	1763	1539	1714	1763	0				1767	0	1572
Q Serve(g_s), s	0.0	6.1	4.2	6.0	2.7	0.0				1.7	0.0	1.8
Cycle Q Clear(g_c), s	0.0	6.1	4.2	6.0	2.7	0.0				1.7	0.0	1.8
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1015	443	759	2238	0				403	0	179
V/C Ratio(X)	0.00	0.61	0.44	0.72	0.24	0.00				0.39	0.00	0.41
Avail Cap(c_a), veh/h	0	3472	1515	2110	6085	0				2176	0	968
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.5	11.8	14.7	3.2	0.0				16.7	0.0	16.7
Incr Delay (d2), s/veh	0.0	0.2	0.3	0.5	0.0	0.0				0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.0	1.2	1.8	0.3	0.0				0.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.7	12.1	15.2	3.2	0.0				16.9	0.0	17.3
LnGrp LOS	A	B	B	B	A	A				B	A	B
Approach Vol, veh/h		810			1095						230	
Approach Delay, s/veh		12.5			9.2						17.0	
Approach LOS		B			A						B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	14.1	16.8		9.7		30.9						
Change Period (Y+Rc), s	5.1	5.1		5.1		5.1						
Max Green Setting (Gmax), s	25.0	40.0		25.0		70.1						
Max Q Clear Time (g_c+I1), s	8.0	8.1		3.8		4.7						
Green Ext Time (p_c), s	1.0	3.4		0.4		2.4						

Intersection Summary												
HCM 6th Ctrl Delay			11.3									
HCM 6th LOS			B									

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	527	0	0	905	364	132	31	286	0	0	0
Future Volume (veh/h)	168	527	0	0	905	364	132	31	286	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	198	620	0	0	995	366	92	115	261			
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.88	0.88	0.88			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	235	2677	0	0	2064	759	200	210	355			
Arrive On Green	0.13	0.76	0.00	0.00	1.00	1.00	0.11	0.11	0.11			
Sat Flow, veh/h	1767	3618	0	0	3791	1332	1767	1856	3145			
Grp Volume(v), veh/h	198	620	0	0	927	434	92	115	261			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1689	1579	1767	1856	1572			
Q Serve(g_s), s	9.8	4.6	0.0	0.0	0.0	0.0	4.4	5.3	7.2			
Cycle Q Clear(g_c), s	9.8	4.6	0.0	0.0	0.0	0.0	4.4	5.3	7.2			
Prop In Lane	1.00		0.00	0.00		0.84	1.00		1.00			
Lane Grp Cap(c), veh/h	235	2677	0	0	1923	899	200	210	355			
V/C Ratio(X)	0.84	0.23	0.00	0.00	0.48	0.48	0.46	0.55	0.73			
Avail Cap(c_a), veh/h	530	2677	0	0	1923	899	412	433	734			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.84	0.84	0.00	0.00	0.95	0.95	1.00	1.00	1.00			
Uniform Delay (d), s/veh	38.1	3.2	0.0	0.0	0.0	0.0	37.4	37.7	38.6			
Incr Delay (d2), s/veh	2.6	0.2	0.0	0.0	0.8	1.8	0.6	0.8	1.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.3	1.1	0.0	0.0	0.2	0.4	1.9	2.4	2.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.7	3.3	0.0	0.0	0.8	1.8	38.0	38.6	39.7			
LnGrp LOS	D	A	A	A	A	A	D	D	D			
Approach Vol, veh/h		818			1361			468				
Approach Delay, s/veh		12.4			1.1			39.1				
Approach LOS		B			A			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		74.7			17.1	57.7		15.3				
Change Period (Y+Rc), s		6.4			5.1	6.4		5.1				
Max Green Setting (Gmax), s		57.5			27.0	25.4		21.0				
Max Q Clear Time (g_c+I1), s		6.6			11.8	2.0		9.2				
Green Ext Time (p_c), s		2.8			0.2	6.5		0.9				

Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	790	10	28	1106	22	44	3	28	105	5	102
Future Volume (veh/h)	18	790	10	28	1106	22	44	3	28	105	5	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	20	898	10	30	1177	21	59	4	34	109	5	96
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.74	0.74	0.74	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	31	1376	15	564	3623	65	182	23	197	239	11	207
Arrive On Green	0.03	0.77	0.77	0.32	0.71	0.71	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1767	3570	40	1767	5122	91	1278	167	1421	1351	78	1497
Grp Volume(v), veh/h	20	443	465	30	776	422	59	0	38	109	0	101
Grp Sat Flow(s),veh/h/ln	1767	1763	1847	1767	1689	1836	1278	0	1589	1351	0	1575
Q Serve(g_s), s	1.0	10.4	10.4	1.1	7.9	7.9	4.0	0.0	1.9	7.0	0.0	5.3
Cycle Q Clear(g_c), s	1.0	10.4	10.4	1.1	7.9	7.9	9.3	0.0	1.9	8.9	0.0	5.3
Prop In Lane	1.00		0.02	1.00		0.05	1.00		0.89	1.00		0.95
Lane Grp Cap(c), veh/h	31	680	712	564	2389	1299	182	0	220	239	0	218
V/C Ratio(X)	0.65	0.65	0.65	0.05	0.32	0.32	0.32	0.00	0.17	0.46	0.00	0.46
Avail Cap(c_a), veh/h	285	680	712	564	2389	1299	381	0	468	449	0	464
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	0.76	0.76	0.76	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.2	7.5	7.5	21.2	5.0	5.0	40.0	0.0	34.2	38.1	0.0	35.7
Incr Delay (d2), s/veh	7.8	4.6	4.4	0.0	0.3	0.5	0.4	0.0	0.1	0.5	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.1	3.2	0.4	2.1	2.4	1.3	0.0	0.7	2.3	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	12.1	11.9	21.2	5.3	5.5	40.4	0.0	34.3	38.6	0.0	36.3
LnGrp LOS	D	B	B	C	A	A	D	A	C	D	A	D
Approach Vol, veh/h		928			1228			97			210	
Approach Delay, s/veh		12.8			5.7			38.0			37.5	
Approach LOS		B			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.0	40.0		16.0	5.1	69.0		16.0				
Change Period (Y+Rc), s	5.3	* 5.3		3.5	3.5	5.3		3.5				
Max Green Setting (Gmax), s	16.5	* 35		26.5	14.5	36.7		26.5				
Max Q Clear Time (g_c+I1), s	13.1	12.4		10.9	3.0	9.9		11.3				
Green Ext Time (p_c), s	0.0	6.8		0.5	0.0	10.3		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



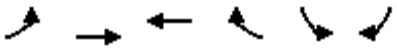
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	741	178	296	1043	28	90	36	112	36	278	38
Future Volume (veh/h)	21	741	178	296	1043	28	90	36	112	36	278	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	23	814	176	325	1146	28	106	42	119	40	309	38
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.85	0.85	0.85	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	33	968	209	359	1836	45	134	113	319	51	351	43
Arrive On Green	0.02	0.34	0.34	0.20	0.52	0.52	0.08	0.26	0.26	0.03	0.22	0.22
Sat Flow, veh/h	1767	2866	620	1767	3514	86	1767	427	1209	1767	1617	199
Grp Volume(v), veh/h	23	501	489	325	575	599	106	0	161	40	0	347
Grp Sat Flow(s),veh/h/ln	1767	1763	1723	1767	1763	1837	1767	0	1636	1767	0	1816
Q Serve(g_s), s	1.3	27.2	27.2	18.6	23.9	23.9	6.1	0.0	8.3	2.3	0.0	19.1
Cycle Q Clear(g_c), s	1.3	27.2	27.2	18.6	23.9	23.9	6.1	0.0	8.3	2.3	0.0	19.1
Prop In Lane	1.00		0.36	1.00		0.05	1.00		0.74	1.00		0.11
Lane Grp Cap(c), veh/h	33	596	582	359	921	960	134	0	432	51	0	394
V/C Ratio(X)	0.70	0.84	0.84	0.90	0.62	0.62	0.79	0.00	0.37	0.79	0.00	0.88
Avail Cap(c_a), veh/h	341	1533	1498	1024	2214	2307	597	0	700	427	0	614
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.5	31.7	31.7	40.3	17.5	17.5	47.0	0.0	31.1	50.0	0.0	39.2
Incr Delay (d2), s/veh	9.4	2.5	2.5	3.5	0.5	0.5	3.9	0.0	0.2	9.5	0.0	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	11.4	11.1	8.1	9.0	9.4	2.8	0.0	3.3	1.2	0.0	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.9	34.2	34.2	43.8	18.0	18.0	51.0	0.0	31.3	59.4	0.0	45.3
LnGrp LOS	E	C	C	D	B	B	D	A	C	E	A	D
Approach Vol, veh/h		1013			1499			267			387	
Approach Delay, s/veh		34.8			23.6			39.1			46.8	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.5	40.3	11.3	27.3	5.4	59.4	6.5	32.2
Change Period (Y+Rc), s	3.5	5.3	3.5	* 4.9	3.5	5.3	3.5	4.9
Max Green Setting (Gmax), s	0.0	90.0	35.0	* 35	20.0	130.0	25.0	44.3
Max Q Clear Time (g_c+I1), s	0.6	29.2	8.1	21.1	3.3	25.9	4.3	10.3
Green Ext Time (p_c), s	0.4	5.8	0.1	1.2	0.0	7.3	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	31.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	901	1317	11	18	11
Future Volume (veh/h)	9	901	1317	11	18	11
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	9	948	1401	11	25	12
Peak Hour Factor	0.95	0.95	0.94	0.94	0.72	0.72
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	16	3086	2966	23	47	42
Arrive On Green	0.01	0.88	1.00	1.00	0.03	0.03
Sat Flow, veh/h	1767	3618	3677	28	1767	1572
Grp Volume(v), veh/h	9	948	689	723	25	12
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1850	1767	1572
Q Serve(g_s), s	0.5	4.1	0.0	0.0	1.3	0.7
Cycle Q Clear(g_c), s	0.5	4.1	0.0	0.0	1.3	0.7
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	16	3086	1459	1531	47	42
V/C Ratio(X)	0.57	0.31	0.47	0.47	0.53	0.28
Avail Cap(c_a), veh/h	285	3086	1459	1531	560	498
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.43	0.43	0.71	0.71	1.00	1.00
Uniform Delay (d), s/veh	44.4	1.0	0.0	0.0	43.2	42.9
Incr Delay (d2), s/veh	5.0	0.1	0.8	0.7	3.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.3	0.3	0.6	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	49.5	1.1	0.8	0.7	46.6	44.3
LnGrp LOS	D	A	A	A	D	D
Approach Vol, veh/h		957	1412		37	
Approach Delay, s/veh		1.5	0.8		45.8	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		84.1		5.9	4.3	79.8
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		52.7		28.5	14.5	34.7
Max Q Clear Time (g_c+I1), s		6.1		3.3	2.5	2.0
Green Ext Time (p_c), s		7.8		0.0	0.0	14.4

Intersection Summary		
HCM 6th Ctrl Delay		1.8
HCM 6th LOS		A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	676	152	421	1125	45	122	35	241	89	99	63
Future Volume (veh/h)	25	676	152	421	1125	45	122	35	241	89	99	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	768	150	458	1223	38	133	38	45	102	114	61
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	440	793	155	626	1314	41	108	180	148	106	178	149
Arrive On Green	0.50	0.54	0.54	0.35	0.38	0.38	0.06	0.10	0.10	0.06	0.10	0.10
Sat Flow, veh/h	1767	2925	571	1767	3488	108	1767	1856	1527	1767	1856	1553
Grp Volume(v), veh/h	28	463	455	458	618	643	133	38	45	102	114	61
Grp Sat Flow(s),veh/h/ln	1767	1763	1733	1767	1763	1834	1767	1856	1527	1767	1856	1553
Q Serve(g_s), s	0.7	22.8	22.8	20.3	30.3	30.3	5.5	1.7	1.2	5.2	5.3	2.1
Cycle Q Clear(g_c), s	0.7	22.8	22.8	20.3	30.3	30.3	5.5	1.7	1.2	5.2	5.3	2.1
Prop In Lane	1.00		0.33	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	440	478	470	626	664	691	108	180	148	106	178	149
V/C Ratio(X)	0.06	0.97	0.97	0.73	0.93	0.93	1.23	0.21	0.30	0.96	0.64	0.41
Avail Cap(c_a), veh/h	440	478	470	626	664	691	108	559	460	106	557	466
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	0.58	0.58	0.58	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	20.2	20.2	25.3	26.9	26.9	42.3	37.5	9.6	42.2	39.2	14.8
Incr Delay (d2), s/veh	0.0	33.2	33.6	2.3	14.4	14.1	161.4	0.2	0.4	75.0	1.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	9.6	9.5	8.2	14.1	14.6	7.2	0.8	0.9	4.4	2.4	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.2	53.5	53.8	27.6	41.3	41.0	203.7	37.7	10.0	117.2	40.7	15.5
LnGrp LOS	B	D	D	C	D	D	F	D	B	F	D	B
Approach Vol, veh/h		946			1719			216			277	
Approach Delay, s/veh		52.6			37.5			134.1			63.3	
Approach LOS		D			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.4	31.1	10.0	13.5	25.9	40.6	9.9	13.6
Change Period (Y+Rc), s	3.5	6.7	4.5	4.9	3.5	6.7	4.5	4.9
Max Green Setting (Gmax), s	13.5	24.4	5.5	27.0	4.0	33.9	5.4	27.1
Max Q Clear Time (g_c+I1), s	22.3	24.8	7.5	7.3	2.7	32.3	7.2	3.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.0	1.2	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	50.9
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	674	208	184	1108	9	164	105	33	12	312	311
Future Volume (veh/h)	130	674	208	184	1108	9	164	105	33	12	312	311
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	151	784	219	214	1288	9	210	135	38	14	376	338
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.78	0.78	0.78	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	206	1188	332	591	2031	14	261	637	173	41	299	266
Arrive On Green	0.06	0.44	0.44	0.06	0.19	0.19	0.08	0.23	0.23	0.01	0.17	0.17
Sat Flow, veh/h	3428	2712	758	3428	3589	25	3428	2730	742	3428	1764	1569
Grp Volume(v), veh/h	151	510	493	214	633	664	210	85	88	14	376	338
Grp Sat Flow(s),veh/h/ln	1714	1763	1707	1714	1763	1851	1714	1763	1709	1714	1763	1570
Q Serve(g_s), s	6.1	32.0	32.0	8.4	46.3	46.4	8.4	5.5	5.8	0.6	23.7	23.7
Cycle Q Clear(g_c), s	6.1	32.0	32.0	8.4	46.3	46.4	8.4	5.5	5.8	0.6	23.7	23.7
Prop In Lane	1.00		0.44	1.00		0.01	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	206	772	748	591	998	1048	261	412	399	41	298	266
V/C Ratio(X)	0.73	0.66	0.66	0.36	0.63	0.63	0.80	0.21	0.22	0.34	1.26	1.27
Avail Cap(c_a), veh/h	575	772	748	591	998	1048	453	412	399	453	298	266
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.70	0.70	0.70	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.7	31.1	31.1	58.6	43.6	43.6	63.6	43.2	43.4	68.6	58.1	58.2
Incr Delay (d2), s/veh	3.5	3.1	3.2	0.3	2.4	2.3	2.2	0.1	0.1	1.8	140.8	148.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	13.8	13.3	3.8	22.5	23.6	3.7	2.4	2.5	0.3	22.1	20.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	34.2	34.3	58.9	46.0	45.9	65.9	43.3	43.5	70.4	199.0	207.0
LnGrp LOS	E	C	C	E	D	D	E	D	D	E	F	F
Approach Vol, veh/h		1154			1511			383			728	
Approach Delay, s/veh		38.7			47.8			55.7			200.2	
Approach LOS		D			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	67.0	14.2	29.0	11.9	84.9	5.2	38.0
Change Period (Y+Rc), s	5.7	* 5.7	3.5	5.3	3.5	5.7	3.5	5.3
Max Green Setting (Gmax), s	18.5	* 61	18.5	23.7	23.5	56.3	18.5	23.7
Max Q Clear Time (g_c+I1), s	10.4	34.0	10.4	25.7	8.1	48.4	2.6	7.8
Green Ext Time (p_c), s	0.4	6.7	0.2	0.0	0.4	4.6	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	75.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	616	64	127	1199	117	61	15	74	47	18	79
Future Volume (veh/h)	28	616	64	127	1199	117	61	15	74	47	18	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	34	742	63	151	1427	110	38	48	61	38	44	74
Peak Hour Factor	0.83	0.83	0.83	0.84	0.84	0.84	0.98	0.98	0.98	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	72	1453	737	1105	2561	1238	110	116	96	125	131	107
Arrive On Green	0.04	0.82	0.82	0.32	0.73	0.73	0.06	0.06	0.06	0.07	0.07	0.07
Sat Flow, veh/h	3428	3526	1551	3428	3526	1552	1767	1856	1542	1767	1856	1523
Grp Volume(v), veh/h	34	742	63	151	1427	110	38	48	61	38	44	74
Grp Sat Flow(s),veh/h/ln	1714	1763	1551	1714	1763	1552	1767	1856	1542	1767	1856	1523
Q Serve(g_s), s	1.4	8.9	1.0	4.4	26.1	2.2	2.9	3.5	5.4	2.9	3.2	6.6
Cycle Q Clear(g_c), s	1.4	8.9	1.0	4.4	26.1	2.2	2.9	3.5	5.4	2.9	3.2	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	1453	737	1105	2561	1238	110	116	96	125	131	107
V/C Ratio(X)	0.47	0.51	0.09	0.14	0.56	0.09	0.35	0.42	0.64	0.31	0.34	0.69
Avail Cap(c_a), veh/h	478	1453	737	1105	2561	1238	278	292	242	278	292	239
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.68	0.29	0.29	0.29	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.3	8.0	5.9	33.6	8.8	3.1	62.9	63.2	64.1	61.8	61.9	63.6
Incr Delay (d2), s/veh	1.2	0.9	0.2	0.0	0.3	0.0	0.7	0.9	2.6	0.5	0.6	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.5	0.4	1.8	8.6	0.9	1.3	1.7	2.2	1.3	1.5	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.5	8.9	6.0	33.6	9.1	3.2	63.6	64.1	66.7	62.3	62.5	66.5
LnGrp LOS	E	A	A	C	A	A	E	E	E	E	E	E
Approach Vol, veh/h		839			1688			147			156	
Approach Delay, s/veh		11.1			10.9			65.0			64.4	
Approach LOS		B			B			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.4	63.0		13.9	6.4	107.0		12.7
Change Period (Y+Rc), s	5.3	* 5.3		4.0	3.5	5.3		4.0
Max Green Setting (Gmax), s	21.5	* 58		22.0	19.5	59.7		22.0
Max Q Clear Time (g_c+I1), s	10.4	10.9		8.6	3.4	28.1		7.4
Green Ext Time (p_c), s	0.2	11.9		0.2	0.0	22.2		0.2

Intersection Summary	
HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	441	112	983	1157	111	78	577	414	100	1585	149
Future Volume (veh/h)	131	441	112	983	1157	111	78	577	414	100	1585	149
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	141	474	98	1080	1271	111	93	687	394	106	1686	145
Peak Hour Factor	0.93	0.93	0.93	0.91	0.91	0.91	0.84	0.84	0.84	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	533	1584	483	451	1302	114	238	1794	754	155	1920	165
Arrive On Green	0.05	0.10	0.10	0.13	0.28	0.28	0.07	0.35	0.35	0.05	0.32	0.32
Sat Flow, veh/h	3428	5066	1545	3428	4736	414	3428	5066	1546	3428	6029	518
Grp Volume(v), veh/h	141	474	98	1080	906	476	93	687	394	106	1339	492
Grp Sat Flow(s),veh/h/ln	1714	1689	1545	1714	1689	1772	1714	1689	1546	1714	1596	1760
Q Serve(g_s), s	5.5	12.1	6.2	18.4	37.2	37.2	3.6	14.2	24.6	4.3	37.0	37.0
Cycle Q Clear(g_c), s	5.5	12.1	6.2	18.4	37.2	37.2	3.6	14.2	24.6	4.3	37.0	37.0
Prop In Lane	1.00		1.00	1.00		0.23	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	533	1584	483	451	929	487	238	1794	754	155	1525	561
V/C Ratio(X)	0.26	0.30	0.20	2.40	0.98	0.98	0.39	0.38	0.52	0.68	0.88	0.88
Avail Cap(c_a), veh/h	533	1584	483	451	929	487	316	1794	754	1014	1566	576
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.7	48.6	27.5	60.8	50.3	50.3	62.3	33.8	24.9	65.9	45.1	45.1
Incr Delay (d2), s/veh	0.1	0.5	0.9	635.4	24.3	35.2	1.3	0.2	0.8	2.0	6.0	14.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	5.5	3.2	47.5	18.2	20.6	1.6	5.7	8.7	1.9	15.1	17.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.8	49.0	28.4	696.2	74.5	85.5	63.6	33.9	25.6	67.8	51.1	59.5
LnGrp LOS	E	D	C	F	E	F	E	C	C	E	D	E
Approach Vol, veh/h		713			2462			1174			1937	
Approach Delay, s/veh		48.1			349.4			33.5			54.2	
Approach LOS		D			F			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	55.8	23.0	50.3	15.9	50.8	28.3	45.0
Change Period (Y+Rc), s	4.6	6.2	4.6	6.5	6.2	* 6.2	6.5	* 6.5
Max Green Setting (Gmax), s	4.1	17.8	18.4	40.5	12.9	* 46	20.4	* 39
Max Q Clear Time (g_c+I1), s	6.3	26.6	20.4	14.1	5.6	39.0	7.5	39.2
Green Ext Time (p_c), s	0.2	0.0	0.0	4.0	0.1	5.5	0.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	165.2
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

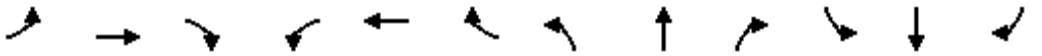
Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	94	14	91	157	0
Future Vol, veh/h	1	94	14	91	157	0
Conflicting Peds, #/hr	5	0	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	80	80	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1	136	18	114	176	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	341	186	186	0	-	0
Stage 1	186	-	-	-	-	-
Stage 2	155	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	653	854	1382	-	-	-
Stage 1	843	-	-	-	-	-
Stage 2	871	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	631	846	1369	-	-	-
Mov Cap-2 Maneuver	631	-	-	-	-	-
Stage 1	824	-	-	-	-	-
Stage 2	862	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1369	-	843	-	-
HCM Lane V/C Ratio	0.013	-	0.163	-	-
HCM Control Delay (s)	7.7	-	10.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	663	178	311	599	0	0	0	0	335	4	138
Future Volume (veh/h)	0	663	178	311	599	0	0	0	0	335	4	138
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	691	148	331	637	0				345	0	112
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94				0.98	0.98	0.98
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	1057	463	631	2128	0				554	0	246
Arrive On Green	0.00	0.30	0.30	0.18	0.60	0.00				0.16	0.00	0.16
Sat Flow, veh/h	0	3618	1545	3428	3618	0				3534	0	1572
Grp Volume(v), veh/h	0	691	148	331	637	0				345	0	112
Grp Sat Flow(s),veh/h/ln	0	1763	1545	1714	1763	0				1767	0	1572
Q Serve(g_s), s	0.0	7.3	3.2	3.7	3.7	0.0				3.9	0.0	2.8
Cycle Q Clear(g_c), s	0.0	7.3	3.2	3.7	3.7	0.0				3.9	0.0	2.8
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1057	463	631	2128	0				554	0	246
V/C Ratio(X)	0.00	0.65	0.32	0.52	0.30	0.00				0.62	0.00	0.45
Avail Cap(c_a), veh/h	0	2484	1089	2013	4977	0				2076	0	923
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.0	11.5	15.7	4.1	0.0				16.8	0.0	16.3
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.3	0.0	0.0				0.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.4	0.9	1.3	0.7	0.0				1.4	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.2	11.7	15.9	4.1	0.0				17.2	0.0	16.8
LnGrp LOS	A	B	B	B	A	A				B	A	B
Approach Vol, veh/h		839			968						457	
Approach Delay, s/veh		13.0			8.2						17.1	
Approach LOS		B			A						B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	12.9	17.9		11.8		30.8
Change Period (Y+Rc), s	5.1	5.1		5.1		5.1
Max Green Setting (Gmax), s	25.0	30.0		25.0		60.1
Max Q Clear Time (g_c+I1), s	5.7	9.3		5.9		5.7
Green Ext Time (p_c), s	0.6	3.5		0.8		3.2

Intersection Summary	
HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	829	0	0	772	424	194	99	476	0	0	0
Future Volume (veh/h)	134	829	0	0	772	424	194	99	476	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	161	999	0	0	804	401	164	186	434			
Peak Hour Factor	0.83	0.83	0.83	0.96	0.96	0.96	0.89	0.89	0.89			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	196	2464	0	0	1793	811	306	322	545			
Arrive On Green	0.11	0.70	0.00	0.00	0.53	0.53	0.17	0.17	0.17			
Sat Flow, veh/h	1767	3618	0	0	3544	1527	1767	1856	3145			
Grp Volume(v), veh/h	161	999	0	0	804	401	164	186	434			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1689	1527	1767	1856	1572			
Q Serve(g_s), s	8.0	10.7	0.0	0.0	13.2	15.0	7.6	8.3	11.9			
Cycle Q Clear(g_c), s	8.0	10.7	0.0	0.0	13.2	15.0	7.6	8.3	11.9			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	196	2464	0	0	1793	811	306	322	545			
V/C Ratio(X)	0.82	0.41	0.00	0.00	0.45	0.49	0.54	0.58	0.80			
Avail Cap(c_a), veh/h	432	2464	0	0	1793	811	511	536	909			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.76	0.76	0.00	0.00	0.96	0.96	1.00	1.00	1.00			
Uniform Delay (d), s/veh	39.1	5.7	0.0	0.0	13.0	13.4	33.9	34.2	35.7			
Incr Delay (d2), s/veh	2.5	0.4	0.0	0.0	0.8	2.1	0.5	0.6	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.6	3.4	0.0	0.0	4.6	5.0	3.3	3.7	4.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	6.1	0.0	0.0	13.8	15.5	34.4	34.8	36.7			
LnGrp LOS	D	A	A	A	B	B	C	C	D			
Approach Vol, veh/h		1160			1205			784				
Approach Delay, s/veh		11.0			14.3			35.8				
Approach LOS		B			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		69.3			15.1	54.2		20.7				
Change Period (Y+Rc), s		6.4			5.1	6.4		5.1				
Max Green Setting (Gmax), s		52.5			22.0	25.4		26.0				
Max Q Clear Time (g_c+I1), s		12.7			10.0	17.0		13.9				
Green Ext Time (p_c), s		5.7			0.2	3.6		1.7				

Intersection Summary	
HCM 6th Ctrl Delay	18.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	1241	28	59	1139	29	22	2	18	54	1	45
Future Volume (veh/h)	29	1241	28	59	1139	29	22	2	18	54	1	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	30	1266	27	63	1212	28	35	3	26	59	1	44
Peak Hour Factor	0.98	0.98	0.98	0.94	0.94	0.94	0.63	0.63	0.63	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	38	1667	36	578	4037	93	135	14	117	150	3	126
Arrive On Green	0.02	0.47	0.47	0.65	1.00	1.00	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1767	3527	75	1767	5090	118	1346	163	1409	1366	34	1515
Grp Volume(v), veh/h	30	632	661	63	804	436	35	0	29	59	0	45
Grp Sat Flow(s),veh/h/ln	1767	1763	1840	1767	1689	1831	1346	0	1571	1366	0	1550
Q Serve(g_s), s	2.0	35.4	35.5	1.6	0.0	0.0	3.0	0.0	2.1	5.1	0.0	3.3
Cycle Q Clear(g_c), s	2.0	35.4	35.5	1.6	0.0	0.0	6.3	0.0	2.1	7.1	0.0	3.3
Prop In Lane	1.00		0.04	1.00		0.06	1.00		0.90	1.00		0.98
Lane Grp Cap(c), veh/h	38	833	869	578	2678	1452	135	0	131	150	0	129
V/C Ratio(X)	0.80	0.76	0.76	0.11	0.30	0.30	0.26	0.00	0.22	0.39	0.00	0.35
Avail Cap(c_a), veh/h	272	833	869	578	2678	1452	354	0	386	372	0	381
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	0.67	0.67	0.67	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.5	26.0	26.0	14.3	0.0	0.0	54.9	0.0	51.4	54.7	0.0	52.0
Incr Delay (d2), s/veh	11.2	5.4	5.2	0.0	0.2	0.4	0.4	0.0	0.3	0.6	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	15.3	15.9	0.6	0.1	0.1	1.0	0.0	0.8	1.8	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.6	31.4	31.2	14.3	0.2	0.4	55.3	0.0	51.7	55.3	0.0	52.6
LnGrp LOS	E	C	C	B	A	A	E	A	D	E	A	D
Approach Vol, veh/h		1323			1303			64			104	
Approach Delay, s/veh		32.2			0.9			53.7			54.1	
Approach LOS		C			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.5	62.0		13.5	6.1	100.5		13.5				
Change Period (Y+Rc), s	5.3	* 5.3		3.5	3.5	5.3		3.5				
Max Green Setting (Gmax), s	21.5	* 57		29.5	18.5	59.7		29.5				
Max Q Clear Time (g_c+I1), s	3.6	37.5		9.1	4.0	2.0		8.3				
Green Ext Time (p_c), s	0.1	9.8		0.2	0.0	13.3		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	18.9
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



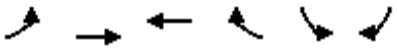
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	1192	97	150	1044	32	136	122	198	28	59	32
Future Volume (veh/h)	45	1192	97	150	1044	32	136	122	198	28	59	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	47	1242	91	165	1147	32	166	149	218	36	77	38
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.82	0.82	0.82	0.77	0.77	0.77
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	442	1619	118	194	1158	32	294	159	233	46	104	51
Arrive On Green	0.50	0.97	0.97	0.04	0.11	0.11	0.17	0.23	0.23	0.03	0.09	0.09
Sat Flow, veh/h	1767	3330	244	1767	3500	98	1767	680	995	1767	1171	578
Grp Volume(v), veh/h	47	656	677	165	578	601	166	0	367	36	0	115
Grp Sat Flow(s),veh/h/ln	1767	1763	1811	1767	1763	1835	1767	0	1675	1767	0	1749
Q Serve(g_s), s	1.7	4.8	4.9	11.1	39.3	39.3	10.4	0.0	25.8	2.4	0.0	7.7
Cycle Q Clear(g_c), s	1.7	4.8	4.9	11.1	39.3	39.3	10.4	0.0	25.8	2.4	0.0	7.7
Prop In Lane	1.00		0.13	1.00		0.05	1.00		0.59	1.00		0.33
Lane Grp Cap(c), veh/h	442	857	881	194	583	607	294	0	393	46	0	155
V/C Ratio(X)	0.11	0.77	0.77	0.85	0.99	0.99	0.57	0.00	0.93	0.79	0.00	0.74
Avail Cap(c_a), veh/h	442	857	881	302	583	607	294	0	420	243	0	449
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	0.91	0.91	0.91	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.9	0.9	0.9	56.8	53.3	53.3	46.0	0.0	45.0	58.1	0.0	53.4
Incr Delay (d2), s/veh	0.0	5.4	5.4	7.1	33.3	32.7	1.6	0.0	26.4	10.5	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.8	1.8	5.6	23.9	24.8	4.7	0.0	13.4	1.2	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.9	6.3	6.3	63.9	86.5	85.9	47.6	0.0	71.4	68.6	0.0	56.0
LnGrp LOS	C	A	A	E	F	F	D	A	E	E	A	E
Approach Vol, veh/h		1380			1344			533			151	
Approach Delay, s/veh		6.9			83.5			64.0			59.0	
Approach LOS		A			F			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.7	63.6	24.8	14.8	35.3	45.0	6.6	33.0
Change Period (Y+Rc), s	3.5	5.3	* 4.9	* 4.2	5.3	* 5.3	3.5	4.9
Max Green Setting (Gmax), s	20.5	35.7	* 17	* 31	16.5	* 40	16.5	30.1
Max Q Clear Time (g_c+I1), s	13.1	6.9	12.4	9.7	3.7	41.3	4.4	27.8
Green Ext Time (p_c), s	0.1	8.2	0.1	0.4	0.0	0.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	48.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	1395	1191	15	9	15
Future Volume (veh/h)	35	1395	1191	15	9	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	36	1453	1241	14	13	16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.67	0.67
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	46	3194	3038	34	37	32
Arrive On Green	0.03	1.00	1.00	1.00	0.02	0.02
Sat Flow, veh/h	1767	3618	3662	40	1767	1572
Grp Volume(v), veh/h	36	1453	613	642	13	16
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1847	1767	1572
Q Serve(g_s), s	2.4	0.0	0.0	0.0	0.9	1.2
Cycle Q Clear(g_c), s	2.4	0.0	0.0	0.0	0.9	1.2
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	46	3194	1500	1572	37	32
V/C Ratio(X)	0.79	0.45	0.41	0.41	0.36	0.49
Avail Cap(c_a), veh/h	361	3194	1500	1572	538	478
HCM Platoon Ratio	1.33	1.33	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.44	0.44	0.67	0.67	1.00	1.00
Uniform Delay (d), s/veh	57.6	0.0	0.0	0.0	58.0	58.1
Incr Delay (d2), s/veh	4.9	0.2	0.6	0.5	2.2	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.1	0.2	0.2	0.4	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	62.5	0.2	0.6	0.5	60.1	62.4
LnGrp LOS	E	A	A	A	E	E
Approach Vol, veh/h		1489	1255		29	
Approach Delay, s/veh		1.7	0.5		61.4	
Approach LOS		A	A		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		114.0		6.0	6.6	107.4
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		74.7		36.5	24.5	46.7
Max Q Clear Time (g_c+I1), s		2.0		3.2	4.4	2.0
Green Ext Time (p_c), s		16.4		0.0	0.0	13.2

Intersection Summary	
HCM 6th Ctrl Delay	1.8
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	1220	103	208	1068	99	115	82	345	90	56	53
Future Volume (veh/h)	78	1220	103	208	1068	99	115	82	345	90	56	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	82	1284	97	229	1174	104	135	96	53	100	62	52
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.85	0.85	0.85	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	81	1290	97	477	2091	185	149	152	126	124	125	104
Arrive On Green	0.06	0.52	0.52	0.27	0.64	0.64	0.08	0.08	0.08	0.07	0.07	0.07
Sat Flow, veh/h	1767	3322	250	1767	3272	289	1767	1856	1544	1767	1856	1538
Grp Volume(v), veh/h	82	680	701	229	632	646	135	96	53	100	62	52
Grp Sat Flow(s),veh/h/ln	1767	1763	1810	1767	1763	1799	1767	1856	1544	1767	1856	1538
Q Serve(g_s), s	5.5	45.9	46.4	13.0	24.2	24.3	9.1	6.0	2.4	6.7	3.9	3.9
Cycle Q Clear(g_c), s	5.5	45.9	46.4	13.0	24.2	24.3	9.1	6.0	2.4	6.7	3.9	3.9
Prop In Lane	1.00		0.14	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	81	685	703	477	1126	1149	149	152	126	124	125	104
V/C Ratio(X)	1.01	0.99	1.00	0.48	0.56	0.56	0.91	0.63	0.42	0.81	0.49	0.50
Avail Cap(c_a), veh/h	81	685	703	477	1126	1149	149	430	358	137	417	346
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.3	28.9	29.0	36.7	12.2	12.2	54.5	53.3	18.9	55.0	54.0	54.0
Incr Delay (d2), s/veh	97.8	30.8	31.4	0.2	1.5	1.5	47.5	1.6	0.8	27.0	1.1	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	22.2	23.0	5.5	8.8	9.0	6.0	2.9	1.5	3.9	1.8	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	154.1	59.7	60.4	37.0	13.7	13.7	102.0	55.0	19.7	82.1	55.1	55.4
LnGrp LOS	F	E	E	D	B	B	F	D	B	F	E	E
Approach Vol, veh/h		1463			1507			284			214	
Approach Delay, s/veh		65.3			17.2			70.7			67.8	
Approach LOS		E			B			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	53.3	14.6	13.0	9.0	83.4	12.9	14.7
Change Period (Y+Rc), s	6.7	* 6.7	4.5	4.9	3.5	6.7	4.5	4.9
Max Green Setting (Gmax), s	16.5	* 47	10.1	27.0	5.5	57.8	9.3	27.8
Max Q Clear Time (g_c+I1), s	15.0	48.4	11.1	5.9	7.5	26.3	8.7	8.0
Green Ext Time (p_c), s	0.1	0.0	0.0	0.2	0.0	11.9	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	45.0
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	287	1101	222	61	839	120	290	170	53	60	124	243
Future Volume (veh/h)	287	1101	222	61	839	120	290	170	53	60	124	243
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	312	1197	217	64	874	113	345	202	57	67	139	247
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.84	0.84	0.84	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	370	965	174	893	1544	200	400	655	180	109	273	243
Arrive On Green	0.11	0.32	0.32	0.52	0.98	0.98	0.12	0.24	0.24	0.03	0.16	0.16
Sat Flow, veh/h	3428	2983	537	3428	3139	406	3428	2731	751	3428	1763	1569
Grp Volume(v), veh/h	312	704	710	64	491	496	345	129	130	67	139	247
Grp Sat Flow(s),veh/h/ln	1714	1763	1757	1714	1763	1782	1714	1763	1719	1714	1763	1569
Q Serve(g_s), s	12.5	45.3	45.3	1.3	1.4	1.4	13.8	8.4	8.7	2.7	10.1	21.7
Cycle Q Clear(g_c), s	12.5	45.3	45.3	1.3	1.4	1.4	13.8	8.4	8.7	2.7	10.1	21.7
Prop In Lane	1.00		0.31	1.00		0.23	1.00		0.44	1.00		1.00
Lane Grp Cap(c), veh/h	370	570	569	893	867	876	400	423	412	109	273	243
V/C Ratio(X)	0.84	1.23	1.25	0.07	0.57	0.57	0.86	0.30	0.32	0.62	0.51	1.02
Avail Cap(c_a), veh/h	526	570	569	893	867	876	649	423	412	796	273	243
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.40	0.40	0.40	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	47.3	47.4	25.1	0.6	0.6	60.7	43.6	43.8	66.9	54.3	59.2
Incr Delay (d2), s/veh	3.6	111.9	117.8	0.0	2.5	2.4	3.7	0.1	0.2	2.1	0.7	61.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	36.9	37.7	0.5	0.8	0.9	6.2	3.7	3.7	1.2	4.5	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.9	159.2	165.1	25.1	3.1	3.0	64.4	43.8	43.9	69.0	54.9	120.9
LnGrp LOS	E	F	F	C	A	A	E	D	D	E	D	F
Approach Vol, veh/h		1726			1051			604			453	
Approach Delay, s/veh		144.6			4.4			55.6			93.0	
Approach LOS		F			A			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	51.0	19.8	27.0	18.6	74.6	7.9	38.9
Change Period (Y+Rc), s	5.7	* 5.7	3.5	5.3	3.5	5.7	3.5	5.3
Max Green Setting (Gmax), s	28.5	* 45	26.5	21.7	21.5	52.3	32.5	15.7
Max Q Clear Time (g_c+I1), s	13.3	47.3	15.8	23.7	14.5	3.4	4.7	10.7
Green Ext Time (p_c), s	0.2	0.0	0.5	0.0	0.6	7.0	0.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	86.0
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	927	212	167	702	174	224	59	262	135	64	88
Future Volume (veh/h)	67	927	212	167	702	174	224	59	262	135	64	88
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	71	976	179	180	755	156	144	178	214	113	129	80
Peak Hour Factor	0.95	0.95	0.95	0.93	0.93	0.93	0.98	0.98	0.98	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	112	874	644	1242	2080	1063	288	302	254	167	175	146
Arrive On Green	0.07	0.50	0.50	0.72	1.00	1.00	0.16	0.16	0.16	0.09	0.09	0.09
Sat Flow, veh/h	3428	3526	1565	3428	3526	1549	1767	1856	1558	1767	1856	1547
Grp Volume(v), veh/h	71	976	179	180	755	156	144	178	214	113	129	80
Grp Sat Flow(s),veh/h/ln	1714	1763	1565	1714	1763	1549	1767	1856	1558	1767	1856	1547
Q Serve(g_s), s	2.8	34.7	8.2	2.3	0.0	0.0	10.4	12.4	18.7	8.7	9.5	6.9
Cycle Q Clear(g_c), s	2.8	34.7	8.2	2.3	0.0	0.0	10.4	12.4	18.7	8.7	9.5	6.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	112	874	644	1242	2080	1063	288	302	254	167	175	146
V/C Ratio(X)	0.63	1.12	0.28	0.14	0.36	0.15	0.50	0.59	0.84	0.68	0.74	0.55
Avail Cap(c_a), veh/h	478	874	644	1242	2080	1063	417	437	367	303	318	265
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.42	0.42	0.42	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.6	35.3	17.9	12.6	0.0	0.0	53.4	54.3	56.9	61.3	61.7	60.5
Incr Delay (d2), s/veh	0.9	59.9	0.5	0.0	0.4	0.3	0.5	0.7	8.0	1.8	2.3	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	18.1	3.4	0.8	0.1	0.1	4.7	5.9	7.9	4.0	4.6	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.5	95.2	18.4	12.6	0.4	0.3	53.9	55.0	64.9	63.1	64.0	61.7
LnGrp LOS	E	F	B	B	A	A	D	D	E	E	E	E
Approach Vol, veh/h		1226			1091			536			322	
Approach Delay, s/veh		82.2			2.4			58.6			63.1	
Approach LOS		F			A			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	40.0		17.2	8.1	87.9		26.8
Change Period (Y+Rc), s	5.3	* 5.3		4.0	3.5	5.3		4.0
Max Green Setting (Gmax), s	31.5	* 35		24.0	19.5	46.7		33.0
Max Q Clear Time (g_c+I1), s	4.3	36.7		11.5	4.8	2.0		20.7
Green Ext Time (p_c), s	0.3	0.0		0.6	0.1	13.2		1.1

Intersection Summary	
HCM 6th Ctrl Delay	48.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	247	905	152	502	672	140	175	1415	968	157	849	186
Future Volume (veh/h)	247	905	152	502	672	140	175	1415	968	157	849	186
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	274	1006	137	518	693	130	192	1555	851	176	954	173
Peak Hour Factor	0.90	0.90	0.90	0.97	0.97	0.97	0.91	0.91	0.91	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	325	1140	352	1013	1886	350	251	1114	809	268	1275	228
Arrive On Green	0.09	0.22	0.22	0.30	0.44	0.44	0.07	0.22	0.22	0.08	0.23	0.23
Sat Flow, veh/h	3428	5066	1566	3428	4292	796	3428	5066	1564	3428	5482	979
Grp Volume(v), veh/h	274	1006	137	518	544	279	192	1555	851	176	831	296
Grp Sat Flow(s),veh/h/ln	1714	1689	1566	1714	1689	1710	1714	1689	1564	1714	1596	1673
Q Serve(g_s), s	11.0	26.9	8.3	17.6	15.1	15.3	7.7	30.8	30.8	7.0	22.6	23.1
Cycle Q Clear(g_c), s	11.0	26.9	8.3	17.6	15.1	15.3	7.7	30.8	30.8	7.0	22.6	23.1
Prop In Lane	1.00		1.00	1.00		0.47	1.00		1.00	1.00		0.59
Lane Grp Cap(c), veh/h	325	1140	352	1013	1484	752	251	1114	809	268	1114	389
V/C Ratio(X)	0.84	0.88	0.39	0.51	0.37	0.37	0.76	1.40	1.05	0.66	0.75	0.76
Avail Cap(c_a), veh/h	451	1140	352	1013	1484	752	536	1114	809	793	1395	488
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.4	52.5	29.4	40.9	26.2	26.3	63.7	54.6	33.9	62.7	49.9	50.1
Incr Delay (d2), s/veh	5.2	7.0	2.2	0.2	0.7	1.4	5.8	183.4	46.3	1.0	1.9	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	11.9	3.3	7.2	6.0	6.3	3.5	31.7	17.4	3.0	9.0	10.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.6	59.5	31.5	41.1	26.9	27.7	69.4	238.0	80.1	63.8	51.8	55.9
LnGrp LOS	E	E	C	D	C	C	E	F	F	E	D	E
Approach Vol, veh/h		1417			1341			2598			1303	
Approach Delay, s/veh		58.4			32.6			173.8			54.3	
Approach LOS		E			C			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.1	37.0	47.9	38.0	15.4	38.8	17.9	68.0
Change Period (Y+Rc), s	6.2	* 6.2	6.5	* 6.5	5.1	6.2	4.6	6.5
Max Green Setting (Gmax), s	12.4	* 31	23.4	* 32	21.9	40.8	18.4	36.5
Max Q Clear Time (g_c+I1), s	19.3	32.8	19.6	28.9	9.7	25.1	13.0	17.3
Green Ext Time (p_c), s	0.3	0.0	0.4	1.8	0.6	7.3	0.2	5.5

Intersection Summary	
HCM 6th Ctrl Delay	97.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.1

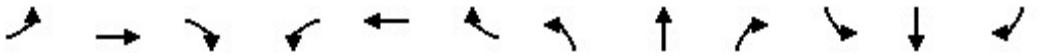
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	34	118	141	165	1
Future Vol, veh/h	0	34	118	141	165	1
Conflicting Peds, #/hr	0	0	4	0	0	4
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	47	47	84	84	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	72	140	168	204	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	657	209	209	0	-	0
Stage 1	209	-	-	-	-	-
Stage 2	448	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	428	829	1356	-	-	-
Stage 1	824	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	380	826	1351	-	-	-
Mov Cap-2 Maneuver	380	-	-	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	639	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1351	-	826	-	-
HCM Lane V/C Ratio	0.104	-	0.088	-	-
HCM Control Delay (s)	8	-	9.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	-	-

Appendix J
Peak Hour Intersection Capacity Worksheets
Future Year Base Conditions



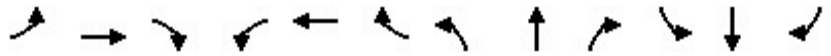
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	735	274	598	670	0	0	0	0	222	5	140
Future Volume (veh/h)	0	735	274	598	670	0	0	0	0	222	5	140
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	799	252	623	698	0				238	0	129
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	1166	510	797	2346	0				459	0	204
Arrive On Green	0.00	0.33	0.33	0.23	0.67	0.00				0.13	0.00	0.13
Sat Flow, veh/h	0	3618	1541	3428	3618	0				3534	0	1572
Grp Volume(v), veh/h	0	799	252	623	698	0				238	0	129
Grp Sat Flow(s),veh/h/ln	0	1763	1541	1714	1763	0				1767	0	1572
Q Serve(g_s), s	0.0	9.8	6.5	8.5	4.1	0.0				3.1	0.0	3.9
Cycle Q Clear(g_c), s	0.0	9.8	6.5	8.5	4.1	0.0				3.1	0.0	3.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1166	510	797	2346	0				459	0	204
V/C Ratio(X)	0.00	0.69	0.49	0.78	0.30	0.00				0.52	0.00	0.63
Avail Cap(c_a), veh/h	0	2829	1236	1719	4958	0				1772	0	789
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.4	13.3	17.9	3.5	0.0				20.2	0.0	20.6
Incr Delay (d2), s/veh	0.0	0.3	0.3	0.6	0.0	0.0				0.3	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.3	2.0	2.8	0.6	0.0				1.2	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.7	13.6	18.6	3.5	0.0				20.6	0.0	21.8
LnGrp LOS	A	B	B	B	A	A				C	A	C
Approach Vol, veh/h		1051			1321						367	
Approach Delay, s/veh		14.4			10.6						21.0	
Approach LOS		B			B						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	16.7	21.6		11.6		38.3
Change Period (Y+Rc), s	5.1	5.1		5.1		5.1
Max Green Setting (Gmax), s	25.0	40.0		25.0		70.1
Max Q Clear Time (g_c+I1), s	10.5	11.8		5.9		6.1
Green Ext Time (p_c), s	1.1	4.6		0.6		3.2

Intersection Summary	
HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

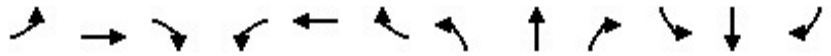


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	667	0	0	1107	443	171	85	315	0	0	0
Future Volume (veh/h)	240	667	0	0	1107	443	171	85	315	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	261	725	0	0	1203	448	139	158	281			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	299	2647	0	0	1896	704	215	225	382			
Arrive On Green	0.17	0.75	0.00	0.00	1.00	1.00	0.12	0.12	0.12			
Sat Flow, veh/h	1767	3618	0	0	3779	1342	1767	1856	3145			
Grp Volume(v), veh/h	261	725	0	0	1125	526	139	158	281			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1689	1577	1767	1856	1572			
Q Serve(g_s), s	13.0	5.8	0.0	0.0	0.0	0.0	6.7	7.4	7.8			
Cycle Q Clear(g_c), s	13.0	5.8	0.0	0.0	0.0	0.0	6.7	7.4	7.8			
Prop In Lane	1.00		0.00	0.00		0.85	1.00		1.00			
Lane Grp Cap(c), veh/h	299	2647	0	0	1773	828	215	225	382			
V/C Ratio(X)	0.87	0.27	0.00	0.00	0.63	0.64	0.65	0.70	0.74			
Avail Cap(c_a), veh/h	530	2647	0	0	1773	828	412	433	734			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.73	0.73	0.00	0.00	0.90	0.90	1.00	1.00	1.00			
Uniform Delay (d), s/veh	36.4	3.5	0.0	0.0	0.0	0.0	37.7	38.0	38.1			
Incr Delay (d2), s/veh	2.3	0.2	0.0	0.0	1.6	3.4	1.2	1.5	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.5	1.4	0.0	0.0	0.4	0.8	2.9	3.4	3.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.8	3.7	0.0	0.0	1.6	3.4	38.9	39.4	39.2			
LnGrp LOS	D	A	A	A	A	A	D	D	D			
Approach Vol, veh/h		986			1651			578				
Approach Delay, s/veh		13.0			2.1			39.2				
Approach LOS		B			A			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		74.0			20.3	53.6		16.0				
Change Period (Y+Rc), s		6.4			5.1	6.4		5.1				
Max Green Setting (Gmax), s		57.5			27.0	25.4		21.0				
Max Q Clear Time (g_c+I1), s		7.8			15.0	2.0		9.8				
Green Ext Time (p_c), s		3.3			0.3	8.5		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1010	20	40	1340	30	50	10	30	130	10	120
Future Volume (veh/h)	30	1010	20	40	1340	30	50	10	30	130	10	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	33	1098	21	43	1426	30	54	11	30	135	10	115
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	44	1363	26	530	3474	73	187	69	188	263	20	230
Arrive On Green	0.05	0.77	0.77	0.30	0.68	0.68	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1767	3536	68	1767	5103	107	1251	438	1194	1348	127	1457
Grp Volume(v), veh/h	33	547	572	43	944	512	54	0	41	135	0	125
Grp Sat Flow(s),veh/h/ln	1767	1763	1841	1767	1689	1833	1251	0	1632	1348	0	1583
Q Serve(g_s), s	1.7	16.9	16.9	1.6	11.1	11.1	3.7	0.0	2.0	8.7	0.0	6.5
Cycle Q Clear(g_c), s	1.7	16.9	16.9	1.6	11.1	11.1	10.2	0.0	2.0	10.6	0.0	6.5
Prop In Lane	1.00		0.04	1.00		0.06	1.00		0.73	1.00		0.92
Lane Grp Cap(c), veh/h	44	680	710	530	2299	1248	187	0	257	263	0	250
V/C Ratio(X)	0.75	0.81	0.81	0.08	0.41	0.41	0.29	0.00	0.16	0.51	0.00	0.50
Avail Cap(c_a), veh/h	285	680	710	530	2299	1248	358	0	481	448	0	466
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.94	0.67	0.67	0.67	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.5	8.3	8.3	22.6	6.4	6.4	39.3	0.0	32.8	37.3	0.0	34.7
Incr Delay (d2), s/veh	8.5	9.3	9.0	0.0	0.4	0.7	0.3	0.0	0.1	0.6	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	4.5	4.7	0.6	3.2	3.5	1.2	0.0	0.8	2.9	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.0	17.6	17.2	22.6	6.7	7.0	39.7	0.0	32.9	37.9	0.0	35.2
LnGrp LOS	D	B	B	C	A	A	D	A	C	D	A	D
Approach Vol, veh/h		1152			1499			95			260	
Approach Delay, s/veh		18.3			7.3			36.7			36.6	
Approach LOS		B			A			D			D	

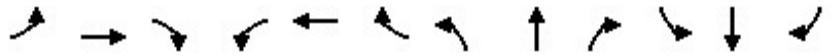
Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.3	40.0		17.7	5.7	66.6		17.7
Change Period (Y+Rc), s	5.3	* 5.3		3.5	3.5	5.3		3.5
Max Green Setting (Gmax), s	16.5	* 35		26.5	14.5	36.7		26.5
Max Q Clear Time (g_c+I1), s	13.6	18.9		12.6	3.7	13.1		12.2
Green Ext Time (p_c), s	0.0	7.4		0.6	0.0	12.3		0.2

Intersection Summary	
HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



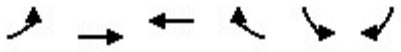
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	1082	310	284	1168	58	121	70	110	100	252	60
Future Volume (veh/h)	100	1082	310	284	1168	58	121	70	110	100	252	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	109	1176	317	309	1270	60	132	76	108	109	274	61
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	127	1249	332	327	1950	92	150	136	194	127	269	60
Arrive On Green	0.07	0.46	0.46	0.19	0.57	0.57	0.09	0.20	0.20	0.07	0.18	0.18
Sat Flow, veh/h	1767	2738	727	1767	3423	162	1767	693	984	1767	1465	326
Grp Volume(v), veh/h	109	751	742	309	653	677	132	0	184	109	0	335
Grp Sat Flow(s),veh/h/ln	1767	1763	1702	1767	1763	1822	1767	0	1677	1767	0	1791
Q Serve(g_s), s	11.6	77.0	80.3	32.9	48.3	48.5	14.1	0.0	18.9	11.6	0.0	35.0
Cycle Q Clear(g_c), s	11.6	77.0	80.3	32.9	48.3	48.5	14.1	0.0	18.9	11.6	0.0	35.0
Prop In Lane	1.00		0.43	1.00		0.09	1.00		0.59	1.00		0.18
Lane Grp Cap(c), veh/h	127	804	776	327	1004	1038	150	0	330	127	0	329
V/C Ratio(X)	0.86	0.93	0.96	0.94	0.65	0.65	0.88	0.00	0.56	0.86	0.00	1.02
Avail Cap(c_a), veh/h	185	831	803	556	1201	1241	324	0	389	232	0	329
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	87.6	49.2	50.1	76.7	28.1	28.1	86.3	0.0	69.2	87.6	0.0	77.9
Incr Delay (d2), s/veh	16.9	16.8	21.3	11.6	0.8	0.8	6.2	0.0	0.6	6.3	0.0	54.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	37.1	38.1	16.0	20.4	21.2	6.7	0.0	8.2	5.6	0.0	21.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	104.6	66.0	71.3	88.3	28.8	28.9	92.6	0.0	69.7	93.9	0.0	132.7
LnGrp LOS	F	E	E	F	C	C	F	A	E	F	A	F
Approach Vol, veh/h		1602			1639			316			444	
Approach Delay, s/veh		71.1			40.1			79.3			123.2	
Approach LOS		E			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	38.9	92.3	19.7	39.9	17.2	114.0	17.2	42.4
Change Period (Y+Rc), s	3.5	5.3	3.5	* 4.9	3.5	5.3	3.5	4.9
Max Green Setting (Gmax), s	30.0	90.0	35.0	* 35	20.0	130.0	25.0	44.3
Max Q Clear Time (g_c+I1), s	34.9	82.3	16.1	37.0	13.6	50.5	13.6	20.9
Green Ext Time (p_c), s	0.4	4.8	0.1	0.0	0.1	9.1	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	64.8
HCM 6th LOS	E

Notes

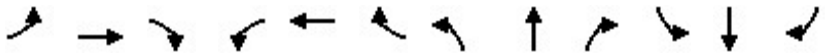
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	1200	1430	20	30	20
Future Volume (veh/h)	20	1200	1430	20	30	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	21	1263	1521	20	33	20
Peak Hour Factor	0.95	0.95	0.94	0.94	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	32	3066	2894	38	58	51
Arrive On Green	0.02	0.87	1.00	1.00	0.03	0.03
Sat Flow, veh/h	1767	3618	3655	47	1767	1572
Grp Volume(v), veh/h	21	1263	752	789	33	20
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1846	1767	1572
Q Serve(g_s), s	1.1	6.6	0.0	0.0	1.7	1.1
Cycle Q Clear(g_c), s	1.1	6.6	0.0	0.0	1.7	1.1
Prop In Lane	1.00			0.03	1.00	1.00
Lane Grp Cap(c), veh/h	32	3066	1432	1500	58	51
V/C Ratio(X)	0.65	0.41	0.53	0.53	0.57	0.39
Avail Cap(c_a), veh/h	285	3066	1432	1500	560	498
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.13	0.13	0.40	0.40	1.00	1.00
Uniform Delay (d), s/veh	43.9	1.2	0.0	0.0	42.9	42.7
Incr Delay (d2), s/veh	1.1	0.1	0.6	0.5	3.3	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.2	0.2	0.8	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.0	1.2	0.6	0.5	46.2	44.4
LnGrp LOS	D	A	A	A	D	D
Approach Vol, veh/h		1284	1541		53	
Approach Delay, s/veh		2.0	0.5		45.5	
Approach LOS		A	A		D	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	83.6		6.4	5.1	78.4
Change Period (Y+Rc), s	5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s	52.7		28.5	14.5	34.7
Max Q Clear Time (g_c+I1), s	8.6		3.7	3.1	2.0
Green Ext Time (p_c), s	11.9		0.1	0.0	16.4

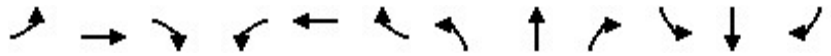
Intersection Summary	
HCM 6th Ctrl Delay	2.0
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	921	164	391	1187	113	148	61	170	82	109	59
Future Volume (veh/h)	63	921	164	391	1187	113	148	61	170	82	109	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	68	1001	156	425	1290	112	161	66	163	89	118	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	79	1384	216	226	1762	152	128	255	211	110	237	199
Arrive On Green	0.06	0.60	0.60	0.13	0.54	0.54	0.07	0.14	0.14	0.06	0.13	0.13
Sat Flow, veh/h	1767	3045	474	1767	3276	283	1767	1856	1535	1767	1856	1558
Grp Volume(v), veh/h	68	579	578	425	692	710	161	66	163	89	118	53
Grp Sat Flow(s),veh/h/ln	1767	1763	1756	1767	1763	1796	1767	1856	1535	1767	1856	1558
Q Serve(g_s), s	3.4	20.8	20.8	11.5	26.9	27.2	6.5	2.9	9.2	4.5	5.3	2.8
Cycle Q Clear(g_c), s	3.4	20.8	20.8	11.5	26.9	27.2	6.5	2.9	9.2	4.5	5.3	2.8
Prop In Lane	1.00		0.27	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	79	801	798	226	948	966	128	255	211	110	237	199
V/C Ratio(X)	0.87	0.72	0.72	1.88	0.73	0.73	1.26	0.26	0.77	0.81	0.50	0.27
Avail Cap(c_a), veh/h	79	801	798	226	948	966	128	575	476	110	557	467
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	0.44	0.44	0.44	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.1	13.8	13.8	39.3	15.8	15.9	41.8	34.7	37.4	41.7	36.6	35.5
Incr Delay (d2), s/veh	53.7	5.1	5.2	404.3	2.2	2.2	165.9	0.2	2.3	34.7	0.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	6.8	6.8	30.1	9.7	10.0	8.6	1.3	3.5	3.0	2.4	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	95.7	18.9	19.0	443.6	18.0	18.1	207.7	34.9	39.7	76.4	37.2	35.7
LnGrp LOS	F	B	B	F	B	B	F	C	D	E	D	D
Approach Vol, veh/h		1225			1827			390			260	
Approach Delay, s/veh		23.2			117.0			108.2			50.3	
Approach LOS		C			F			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	47.6	11.0	16.4	7.5	55.1	10.1	17.3
Change Period (Y+Rc), s	3.5	6.7	4.5	4.9	3.5	6.7	4.5	4.9
Max Green Setting (Gmax), s	11.5	25.4	6.5	27.0	4.0	32.9	5.6	27.9
Max Q Clear Time (g_c+I1), s	13.5	22.8	8.5	7.3	5.4	29.2	6.5	11.2
Green Ext Time (p_c), s	0.0	2.0	0.0	0.4	0.0	2.9	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	80.4
HCM 6th LOS	F



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	703	275	200	1223	90	209	90	50	40	380	329
Future Volume (veh/h)	165	703	275	200	1223	90	209	90	50	40	380	329
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	179	764	277	217	1329	97	227	98	51	43	413	324
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	236	1105	401	574	1840	134	278	520	253	80	319	248
Arrive On Green	0.07	0.44	0.44	0.11	0.37	0.37	0.08	0.23	0.23	0.02	0.17	0.17
Sat Flow, veh/h	3428	2524	915	3428	3332	243	3428	2287	1112	3428	1885	1467
Grp Volume(v), veh/h	179	533	508	217	701	725	227	74	75	43	386	351
Grp Sat Flow(s),veh/h/ln	1714	1763	1676	1714	1763	1812	1714	1763	1636	1714	1763	1588
Q Serve(g_s), s	7.2	34.2	34.2	8.2	47.8	48.2	9.1	4.7	5.2	1.7	23.7	23.7
Cycle Q Clear(g_c), s	7.2	34.2	34.2	8.2	47.8	48.2	9.1	4.7	5.2	1.7	23.7	23.7
Prop In Lane	1.00		0.55	1.00		0.13	1.00		0.68	1.00		0.92
Lane Grp Cap(c), veh/h	236	772	734	574	974	1001	278	401	372	80	298	269
V/C Ratio(X)	0.76	0.69	0.69	0.38	0.72	0.72	0.82	0.18	0.20	0.54	1.29	1.30
Avail Cap(c_a), veh/h	575	772	734	574	974	1001	453	401	372	453	298	269
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.1	31.7	31.7	55.4	34.8	34.9	63.3	43.6	43.8	67.6	58.1	58.2
Incr Delay (d2), s/veh	0.5	0.5	0.5	0.3	3.7	3.7	2.3	0.1	0.1	2.1	154.9	161.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	14.1	13.4	3.6	22.2	22.9	4.0	2.1	2.1	0.8	23.2	21.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.5	32.2	32.2	55.7	38.5	38.6	65.6	43.7	43.9	69.8	213.1	219.7
LnGrp LOS	E	C	C	E	D	D	E	D	D	E	F	F
Approach Vol, veh/h		1220			1643			376			780	
Approach Delay, s/veh		36.9			40.8			57.0			208.1	
Approach LOS		D			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	67.0	14.9	29.0	13.1	83.0	6.7	37.1
Change Period (Y+Rc), s	5.7	* 5.7	3.5	5.3	3.5	5.7	3.5	5.3
Max Green Setting (Gmax), s	18.5	* 61	18.5	23.7	23.5	56.3	18.5	23.7
Max Q Clear Time (g_c+I1), s	10.2	36.2	11.1	25.7	9.2	50.2	3.7	7.2
Green Ext Time (p_c), s	0.4	6.9	0.2	0.0	0.4	4.1	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	73.6
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	674	148	280	1173	265	95	55	155	100	70	100
Future Volume (veh/h)	70	674	148	280	1173	265	95	55	155	100	70	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	733	148	304	1275	262	76	85	143	92	99	93
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	119	1453	814	894	2295	1141	196	206	173	147	155	127
Arrive On Green	0.05	0.55	0.55	0.09	0.21	0.21	0.11	0.11	0.11	0.08	0.08	0.08
Sat Flow, veh/h	3428	3526	1551	3428	3526	1552	1767	1856	1555	1767	1856	1527
Grp Volume(v), veh/h	76	733	148	304	1275	262	76	85	143	92	99	93
Grp Sat Flow(s),veh/h/ln	1714	1763	1551	1714	1763	1552	1767	1856	1555	1767	1856	1527
Q Serve(g_s), s	3.1	18.2	5.6	11.7	45.1	15.0	5.6	6.0	12.6	7.0	7.2	8.3
Cycle Q Clear(g_c), s	3.1	18.2	5.6	11.7	45.1	15.0	5.6	6.0	12.6	7.0	7.2	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	119	1453	814	894	2295	1141	196	206	173	147	155	127
V/C Ratio(X)	0.64	0.50	0.18	0.34	0.56	0.23	0.39	0.41	0.83	0.62	0.64	0.73
Avail Cap(c_a), veh/h	478	1453	814	894	2295	1141	278	292	244	278	292	240
HCM Platoon Ratio	1.33	1.33	1.33	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.66	0.66	0.66	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.9	22.7	13.3	52.6	36.9	15.6	57.8	58.0	60.9	62.0	62.1	62.6
Incr Delay (d2), s/veh	1.4	0.8	0.3	0.0	0.1	0.0	0.5	0.5	10.5	1.6	1.6	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	6.7	2.4	5.3	21.3	8.2	2.5	2.8	5.5	3.2	3.5	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.3	23.5	13.6	52.7	37.0	15.6	58.3	58.5	71.4	63.7	63.8	65.6
LnGrp LOS	E	C	B	D	D	B	E	E	E	E	E	E
Approach Vol, veh/h		957			1841			304			284	
Approach Delay, s/veh		25.5			36.5			64.5			64.3	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.8	63.0		15.7	8.4	96.4		19.5
Change Period (Y+Rc), s	5.3	* 5.3		4.0	3.5	5.3		4.0
Max Green Setting (Gmax), s	21.5	* 58		22.0	19.5	59.7		22.0
Max Q Clear Time (g_c+I1), s	13.7	20.2		10.3	5.1	47.1		14.6
Green Ext Time (p_c), s	0.4	12.0		0.5	0.1	10.2		0.4

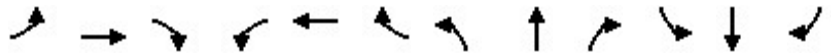
Intersection Summary	
HCM 6th Ctrl Delay	38.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	649	190	1164	1392	160	159	677	513	191	1326	143
Future Volume (veh/h)	125	649	190	1164	1392	160	159	677	513	191	1326	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	134	698	182	1265	1513	163	173	736	468	203	1411	138
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	607	1693	517	451	1274	137	245	1535	675	257	1758	172
Arrive On Green	0.06	0.11	0.11	0.13	0.28	0.28	0.07	0.30	0.30	0.07	0.30	0.30
Sat Flow, veh/h	3428	5066	1546	3428	4633	499	3428	5066	1544	3428	5955	581
Grp Volume(v), veh/h	134	698	182	1265	1102	574	173	736	468	203	1134	415
Grp Sat Flow(s),veh/h/ln	1714	1689	1546	1714	1689	1755	1714	1689	1544	1714	1596	1749
Q Serve(g_s), s	5.2	18.0	11.5	18.4	38.5	38.5	6.9	16.6	34.4	8.2	30.6	30.7
Cycle Q Clear(g_c), s	5.2	18.0	11.5	18.4	38.5	38.5	6.9	16.6	34.4	8.2	30.6	30.7
Prop In Lane	1.00		1.00	1.00		0.28	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	607	1693	517	451	929	483	245	1535	675	257	1413	516
V/C Ratio(X)	0.22	0.41	0.35	2.81	1.19	1.19	0.71	0.48	0.69	0.79	0.80	0.80
Avail Cap(c_a), veh/h	607	1693	517	451	929	483	316	1535	675	1014	1566	572
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.7	49.5	27.6	60.8	50.8	50.8	63.6	39.8	32.1	63.7	45.6	45.6
Incr Delay (d2), s/veh	0.1	0.7	1.7	819.5	95.1	104.0	5.6	0.3	3.2	2.1	3.0	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	8.3	4.8	59.1	27.9	30.2	3.2	6.8	12.8	3.6	12.2	14.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.8	50.1	29.3	880.3	145.8	154.8	69.2	40.1	35.3	65.8	48.5	53.4
LnGrp LOS	E	D	C	F	F	F	E	D	D	E	D	D
Approach Vol, veh/h		1014			2941			1377			1752	
Approach Delay, s/veh		47.3			463.5			42.1			51.7	
Approach LOS		D			F			D			D	

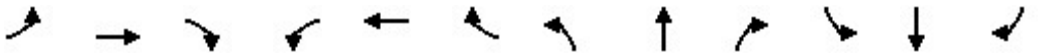
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.1	48.6	23.0	53.3	16.2	47.5	31.3	45.0
Change Period (Y+Rc), s	4.6	6.2	4.6	6.5	6.2	* 6.2	6.5	* 6.5
Max Green Setting (Gmax), s	11.4	17.8	18.4	40.5	12.9	* 46	20.4	* 39
Max Q Clear Time (g_c+I1), s	10.2	36.4	20.4	20.0	8.9	32.7	7.2	40.5
Green Ext Time (p_c), s	0.3	0.0	0.0	6.0	0.2	8.6	0.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	220.2
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



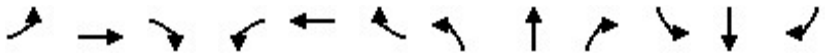
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	759	281	501	713	0	0	0	0	359	0	220
Future Volume (veh/h)	0	759	281	501	713	0	0	0	0	359	0	220
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	791	256	533	759	0				366	0	195
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94				0.98	0.98	0.98
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	1121	492	703	2198	0				621	0	276
Arrive On Green	0.00	0.32	0.32	0.20	0.62	0.00				0.18	0.00	0.18
Sat Flow, veh/h	0	3618	1546	3428	3618	0				3534	0	1572
Grp Volume(v), veh/h	0	791	256	533	759	0				366	0	195
Grp Sat Flow(s),veh/h/ln	0	1763	1546	1714	1763	0				1767	0	1572
Q Serve(g_s), s	0.0	10.0	6.9	7.4	5.2	0.0				4.8	0.0	5.9
Cycle Q Clear(g_c), s	0.0	10.0	6.9	7.4	5.2	0.0				4.8	0.0	5.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1121	492	703	2198	0				621	0	276
V/C Ratio(X)	0.00	0.71	0.52	0.76	0.35	0.00				0.59	0.00	0.71
Avail Cap(c_a), veh/h	0	2083	913	1688	4173	0				1740	0	774
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	15.2	14.2	19.0	4.6	0.0				19.2	0.0	19.7
Incr Delay (d2), s/veh	0.0	0.3	0.3	0.6	0.0	0.0				0.3	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.5	2.1	2.7	1.2	0.0				1.8	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.5	14.5	19.6	4.6	0.0				19.6	0.0	20.9
LnGrp LOS	A	B	B	B	A	A				B	A	C
Approach Vol, veh/h		1047			1292						561	
Approach Delay, s/veh		15.3			10.8						20.0	
Approach LOS		B			B						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	15.5	21.2		14.0		36.8
Change Period (Y+Rc), s	5.1	5.1		5.1		5.1
Max Green Setting (Gmax), s	25.0	30.0		25.0		60.1
Max Q Clear Time (g_c+I1), s	9.4	12.0		7.9		7.2
Green Ext Time (p_c), s	1.0	4.1		1.0		4.0

Intersection Summary	
HCM 6th Ctrl Delay	14.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

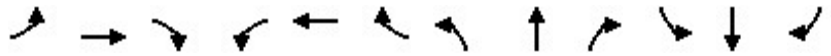


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	869	0	0	1009	589	205	90	714	0	0	0
Future Volume (veh/h)	250	869	0	0	1009	589	205	90	714	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	272	945	0	0	1051	573	160	185	678			
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	309	2206	0	0	1332	600	435	457	775			
Arrive On Green	0.17	0.63	0.00	0.00	0.39	0.39	0.25	0.25	0.25			
Sat Flow, veh/h	1767	3618	0	0	3544	1522	1767	1856	3145			
Grp Volume(v), veh/h	272	945	0	0	1051	573	160	185	678			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1689	1522	1767	1856	1572			
Q Serve(g_s), s	13.5	12.3	0.0	0.0	24.6	32.9	6.8	7.5	18.6			
Cycle Q Clear(g_c), s	13.5	12.3	0.0	0.0	24.6	32.9	6.8	7.5	18.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	309	2206	0	0	1332	600	435	457	775			
V/C Ratio(X)	0.88	0.43	0.00	0.00	0.79	0.95	0.37	0.40	0.87			
Avail Cap(c_a), veh/h	432	2206	0	0	1332	600	511	536	909			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.69	0.69	0.00	0.00	0.90	0.90	1.00	1.00	1.00			
Uniform Delay (d), s/veh	36.2	8.6	0.0	0.0	24.0	26.5	28.1	28.4	32.6			
Incr Delay (d2), s/veh	8.2	0.4	0.0	0.0	4.4	25.4	0.2	0.2	7.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	6.4	4.3	0.0	0.0	9.8	15.1	2.8	3.3	7.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.4	9.0	0.0	0.0	28.3	51.9	28.3	28.6	40.2			
LnGrp LOS	D	A	A	A	C	D	C	C	D			
Approach Vol, veh/h		1217			1624			1023				
Approach Delay, s/veh		16.9			36.6			36.2				
Approach LOS		B			D			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		62.7			20.8	41.9		27.3				
Change Period (Y+Rc), s		6.4			5.1	6.4		5.1				
Max Green Setting (Gmax), s		52.5			22.0	25.4		26.0				
Max Q Clear Time (g_c+I1), s		14.3			15.5	34.9		20.6				
Green Ext Time (p_c), s		5.2			0.2	0.0		1.5				

Intersection Summary	
HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.



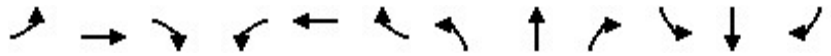
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	1530	30	70	1510	40	30	10	20	70	10	60
Future Volume (veh/h)	40	1530	30	70	1510	40	30	10	20	70	10	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	41	1561	29	74	1606	40	33	11	20	76	11	60
Peak Hour Factor	0.98	0.98	0.98	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	53	1672	31	555	3919	98	131	56	102	167	24	129
Arrive On Green	0.03	0.47	0.47	0.63	1.00	1.00	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1767	3539	66	1767	5080	126	1316	583	1060	1364	246	1341
Grp Volume(v), veh/h	41	776	814	74	1068	578	33	0	31	76	0	71
Grp Sat Flow(s),veh/h/ln	1767	1763	1842	1767	1689	1829	1316	0	1643	1364	0	1586
Q Serve(g_s), s	2.8	49.8	50.1	2.0	0.0	0.0	2.9	0.0	2.1	6.5	0.0	5.1
Cycle Q Clear(g_c), s	2.8	49.8	50.1	2.0	0.0	0.0	8.0	0.0	2.1	8.6	0.0	5.1
Prop In Lane	1.00		0.04	1.00		0.07	1.00		0.65	1.00		0.85
Lane Grp Cap(c), veh/h	53	833	870	555	2606	1411	131	0	158	167	0	153
V/C Ratio(X)	0.78	0.93	0.93	0.13	0.41	0.41	0.25	0.00	0.20	0.45	0.00	0.47
Avail Cap(c_a), veh/h	272	833	870	555	2606	1411	328	0	404	372	0	390
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.73	0.73	0.73	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.8	29.8	29.9	15.7	0.0	0.0	55.1	0.0	50.0	53.9	0.0	51.3
Incr Delay (d2), s/veh	6.7	14.6	14.5	0.0	0.0	0.1	0.4	0.0	0.2	0.7	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	23.1	24.3	0.8	0.0	0.0	1.0	0.0	0.9	2.3	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.5	44.5	44.4	15.7	0.0	0.1	55.5	0.0	50.2	54.6	0.0	52.1
LnGrp LOS	E	D	D	B	A	A	E	A	D	D	A	D
Approach Vol, veh/h		1631			1720			64			147	
Approach Delay, s/veh		45.0			0.7			52.9			53.4	
Approach LOS		D			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.0	62.0		15.0	7.1	97.9		15.0
Change Period (Y+Rc), s	5.3	* 5.3		3.5	3.5	5.3		3.5
Max Green Setting (Gmax), s	21.5	* 57		29.5	18.5	59.7		29.5
Max Q Clear Time (g_c+I1), s	4.0	52.1		10.6	4.8	2.0		10.0
Green Ext Time (p_c), s	0.1	3.8		0.3	0.0	21.5		0.1

Intersection Summary	
HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



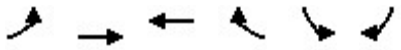
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1405	260	198	1193	69	214	162	256	58	151	50
Future Volume (veh/h)	90	1405	260	198	1193	69	214	162	256	58	151	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	94	1464	261	215	1297	72	233	176	257	63	164	51
Peak Hour Factor	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	378	1264	221	245	1122	62	261	171	249	81	194	60
Arrive On Green	0.43	0.84	0.84	0.05	0.11	0.11	0.15	0.25	0.25	0.05	0.14	0.14
Sat Flow, veh/h	1767	2998	525	1767	3391	188	1767	681	994	1767	1357	422
Grp Volume(v), veh/h	94	850	875	215	673	696	233	0	433	63	0	215
Grp Sat Flow(s),veh/h/ln	1767	1763	1760	1767	1763	1816	1767	0	1675	1767	0	1779
Q Serve(g_s), s	4.1	50.6	50.6	14.5	39.7	39.7	15.5	0.0	30.1	4.2	0.0	14.1
Cycle Q Clear(g_c), s	4.1	50.6	50.6	14.5	39.7	39.7	15.5	0.0	30.1	4.2	0.0	14.1
Prop In Lane	1.00		0.30	1.00		0.10	1.00		0.59	1.00		0.24
Lane Grp Cap(c), veh/h	378	743	742	245	583	601	261	0	420	81	0	254
V/C Ratio(X)	0.25	1.14	1.18	0.88	1.15	1.16	0.89	0.00	1.03	0.78	0.00	0.85
Avail Cap(c_a), veh/h	378	743	742	302	583	601	261	0	420	243	0	456
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.65	0.65	0.65	0.88	0.88	0.88	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.1	9.4	9.4	56.3	53.4	53.4	50.2	0.0	45.0	56.6	0.0	50.1
Incr Delay (d2), s/veh	0.1	75.4	90.3	16.9	85.8	87.0	28.5	0.0	52.0	5.9	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	19.2	22.2	8.0	32.6	33.8	8.9	0.0	18.3	2.0	0.0	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.2	84.8	99.7	73.1	139.3	140.5	78.7	0.0	96.9	62.5	0.0	53.1
LnGrp LOS	C	F	F	E	F	F	E	A	F	E	A	D
Approach Vol, veh/h		1819			1584			666			278	
Approach Delay, s/veh		89.1			130.8			90.5			55.3	
Approach LOS		F			F			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.1	55.9	22.7	21.3	31.0	45.0	9.0	35.0
Change Period (Y+Rc), s	3.5	5.3	* 4.9	* 4.2	5.3	* 5.3	3.5	4.9
Max Green Setting (Gmax), s	20.5	35.7	* 17	* 31	16.5	* 40	16.5	30.1
Max Q Clear Time (g_c+I1), s	16.5	52.6	17.5	16.1	6.1	41.7	6.2	32.1
Green Ext Time (p_c), s	0.1	0.0	0.0	0.7	0.1	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	102.3
HCM 6th LOS	F

Notes

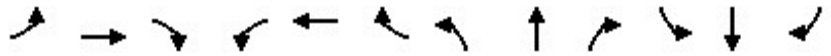
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	1990	1260	20	20	20
Future Volume (veh/h)	50	1990	1260	20	20	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	52	2073	1312	19	22	18
Peak Hour Factor	0.96	0.96	0.96	0.96	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	67	3180	2970	43	43	39
Arrive On Green	0.08	1.00	1.00	1.00	0.02	0.02
Sat Flow, veh/h	1767	3618	3649	51	1767	1572
Grp Volume(v), veh/h	52	2073	650	681	22	18
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1845	1767	1572
Q Serve(g_s), s	3.5	0.0	0.0	0.0	1.5	1.4
Cycle Q Clear(g_c), s	3.5	0.0	0.0	0.0	1.5	1.4
Prop In Lane	1.00			0.03	1.00	1.00
Lane Grp Cap(c), veh/h	67	3180	1472	1541	43	39
V/C Ratio(X)	0.78	0.65	0.44	0.44	0.51	0.47
Avail Cap(c_a), veh/h	361	3180	1472	1541	538	478
HCM Platoon Ratio	2.00	2.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.64	0.64	1.00	1.00
Uniform Delay (d), s/veh	55.0	0.0	0.0	0.0	57.8	57.8
Incr Delay (d2), s/veh	0.7	0.1	0.6	0.6	3.4	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.3	0.3	0.7	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	55.6	0.1	0.6	0.6	61.2	61.0
LnGrp LOS	E	A	A	A	E	E
Approach Vol, veh/h		2125	1331		40	
Approach Delay, s/veh		1.5	0.6		61.1	
Approach LOS		A	A		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		113.6		6.4	8.0	105.5
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		74.7		36.5	24.5	46.7
Max Q Clear Time (g_c+I1), s		2.0		3.5	5.5	2.0
Green Ext Time (p_c), s		34.6		0.0	0.0	14.6

Intersection Summary	
HCM 6th Ctrl Delay	1.8
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	1735	143	239	1091	90	132	82	332	78	79	64
Future Volume (veh/h)	68	1735	143	239	1091	90	132	82	332	78	79	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	72	1826	130	260	1186	87	143	89	296	85	86	62
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	92	1487	105	364	2081	152	110	188	157	102	179	149
Arrive On Green	0.05	0.45	0.45	0.21	0.63	0.63	0.06	0.10	0.10	0.06	0.10	0.10
Sat Flow, veh/h	1767	3341	235	1767	3324	244	1767	1856	1549	1767	1856	1548
Grp Volume(v), veh/h	72	953	1003	260	628	645	143	89	296	85	86	62
Grp Sat Flow(s),veh/h/ln	1767	1763	1813	1767	1763	1805	1767	1856	1549	1767	1856	1548
Q Serve(g_s), s	4.8	53.4	53.4	16.4	24.9	25.0	7.5	5.4	8.1	5.7	5.3	4.5
Cycle Q Clear(g_c), s	4.8	53.4	53.4	16.4	24.9	25.0	7.5	5.4	8.1	5.7	5.3	4.5
Prop In Lane	1.00		0.13	1.00		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	92	784	807	364	1103	1130	110	188	157	102	179	149
V/C Ratio(X)	0.78	1.21	1.24	0.71	0.57	0.57	1.29	0.47	1.89	0.84	0.48	0.42
Avail Cap(c_a), veh/h	158	784	807	364	1103	1130	110	427	356	102	417	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.71	0.71	0.44	0.44	0.44	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.2	33.3	33.3	44.3	13.0	13.1	56.3	50.9	23.7	56.0	51.4	51.0
Incr Delay (d2), s/veh	3.9	105.1	117.1	2.5	0.9	0.9	184.2	0.7	414.7	42.7	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	44.3	48.2	7.2	9.0	9.2	9.0	2.5	21.0	3.7	2.5	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.1	138.4	150.4	46.8	14.0	14.0	240.4	51.6	438.4	98.7	52.1	51.7
LnGrp LOS	E	F	F	D	B	B	F	D	F	F	D	D
Approach Vol, veh/h		2028			1533			528			233	
Approach Delay, s/veh		141.6			19.6			319.6			69.0	
Approach LOS		F			B			F			E	

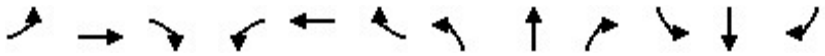
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	60.1	12.0	16.5	9.7	81.8	11.4	17.1
Change Period (Y+Rc), s	6.7	* 6.7	4.5	4.9	3.5	6.7	4.5	4.9
Max Green Setting (Gmax), s	12.5	* 53	7.5	27.0	10.7	55.2	6.9	27.6
Max Q Clear Time (g_c+I1), s	18.4	55.4	9.5	7.3	6.8	27.0	7.7	10.1
Green Ext Time (p_c), s	0.0	0.0	0.0	0.3	0.0	11.3	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	116.1
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	408	1399	368	150	1101	220	304	140	80	110	120	335
Future Volume (veh/h)	408	1399	368	150	1101	220	304	140	80	110	120	335
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	443	1521	376	156	1147	217	330	152	82	120	130	339
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	492	914	217	908	1363	257	385	491	251	170	273	243
Arrive On Green	0.14	0.32	0.32	0.53	0.92	0.92	0.11	0.22	0.22	0.05	0.16	0.16
Sat Flow, veh/h	3428	2823	672	3428	2960	557	3428	2254	1154	3428	1763	1569
Grp Volume(v), veh/h	443	927	970	156	681	683	330	117	117	120	130	339
Grp Sat Flow(s),veh/h/ln	1714	1763	1732	1714	1763	1754	1714	1763	1646	1714	1763	1569
Q Serve(g_s), s	17.8	45.3	45.3	3.3	18.7	19.5	13.2	7.8	8.4	4.8	9.4	21.7
Cycle Q Clear(g_c), s	17.8	45.3	45.3	3.3	18.7	19.5	13.2	7.8	8.4	4.8	9.4	21.7
Prop In Lane	1.00		0.39	1.00		0.32	1.00		0.70	1.00		1.00
Lane Grp Cap(c), veh/h	492	570	561	908	812	808	385	384	358	170	273	243
V/C Ratio(X)	0.90	1.63	1.73	0.17	0.84	0.85	0.86	0.31	0.33	0.71	0.48	1.39
Avail Cap(c_a), veh/h	526	570	561	908	812	808	649	384	358	796	273	243
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.81	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.0	47.3	47.4	25.0	3.7	3.7	61.0	45.9	46.1	65.5	54.0	59.2
Incr Delay (d2), s/veh	2.1	282.5	329.0	0.1	8.4	8.8	2.6	0.2	0.2	2.0	0.5	200.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	63.9	70.1	1.3	3.7	3.8	5.8	3.4	3.4	2.1	4.2	22.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.1	329.8	376.3	25.0	12.1	12.5	63.6	46.1	46.3	67.5	54.4	259.4
LnGrp LOS	E	F	F	C	B	B	E	D	D	E	D	F
Approach Vol, veh/h		2340			1520			564			589	
Approach Delay, s/veh		298.2			13.6			56.4			175.1	
Approach LOS		F			B			E			F	

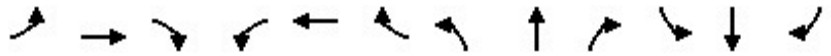
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	42.8	51.0	19.2	27.0	23.6	70.2	10.4	35.8
Change Period (Y+Rc), s	5.7	* 5.7	3.5	5.3	3.5	5.7	3.5	5.3
Max Green Setting (Gmax), s	28.5	* 45	26.5	21.7	21.5	52.3	32.5	15.7
Max Q Clear Time (g_c+I1), s	15.3	47.3	15.2	23.7	19.8	21.5	6.8	10.4
Green Ext Time (p_c), s	0.5	0.0	0.5	0.0	0.3	10.7	0.2	0.4

Intersection Summary	
HCM 6th Ctrl Delay	170.2
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	1210	329	340	804	282	377	100	400	204	70	150
Future Volume (veh/h)	160	1210	329	340	804	282	377	100	400	204	70	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	168	1274	302	366	865	272	244	300	355	149	178	143
Peak Hour Factor	0.95	0.95	0.95	0.93	0.93	0.93	0.98	0.98	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	218	874	759	907	1628	902	417	437	368	210	221	185
Arrive On Green	0.08	0.33	0.33	0.53	0.92	0.92	0.24	0.24	0.24	0.12	0.12	0.12
Sat Flow, veh/h	3428	3526	1565	3428	3526	1548	1767	1856	1562	1767	1856	1553
Grp Volume(v), veh/h	168	1274	302	366	865	272	244	300	355	149	178	143
Grp Sat Flow(s),veh/h/ln	1714	1763	1565	1714	1763	1548	1767	1856	1562	1767	1856	1553
Q Serve(g_s), s	6.7	34.7	16.7	9.0	5.2	2.3	17.1	20.6	31.5	11.4	13.1	12.5
Cycle Q Clear(g_c), s	6.7	34.7	16.7	9.0	5.2	2.3	17.1	20.6	31.5	11.4	13.1	12.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	218	874	759	907	1628	902	417	437	368	210	221	185
V/C Ratio(X)	0.77	1.46	0.40	0.40	0.53	0.30	0.59	0.69	0.96	0.71	0.81	0.77
Avail Cap(c_a), veh/h	478	874	759	907	1628	902	417	437	368	303	318	266
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.66	0.66	0.66	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.1	46.9	20.5	26.4	3.1	1.8	47.4	48.8	52.9	59.3	60.1	59.8
Incr Delay (d2), s/veh	0.2	206.7	0.1	0.1	0.8	0.6	1.4	3.7	37.1	1.6	6.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	39.0	8.7	3.2	1.3	0.8	7.8	10.0	16.1	5.2	6.5	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.3	253.6	20.6	26.4	3.9	2.4	48.9	52.5	90.0	61.0	66.1	64.6
LnGrp LOS	E	F	C	C	A	A	D	D	F	E	E	E
Approach Vol, veh/h		1744			1503			899			470	
Approach Delay, s/veh		194.9			9.1			66.3			64.0	
Approach LOS		F			A			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.3	40.0		20.7	12.4	69.9		37.0
Change Period (Y+Rc), s	5.3	* 5.3		4.0	3.5	5.3		4.0
Max Green Setting (Gmax), s	31.5	* 35		24.0	19.5	46.7		33.0
Max Q Clear Time (g_c+I1), s	11.0	36.7		15.1	8.7	7.2		33.5
Green Ext Time (p_c), s	0.6	0.0		0.8	0.2	16.5		0.0

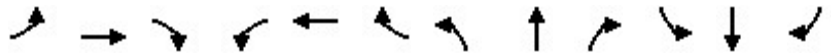
Intersection Summary	
HCM 6th Ctrl Delay	96.0
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	341	1190	253	933	806	201	405	1596	835	250	752	195
Future Volume (veh/h)	341	1190	253	933	806	201	405	1596	835	250	752	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	371	1293	243	962	831	193	440	1735	697	272	817	177
Peak Hour Factor	0.92	0.92	0.92	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	418	1140	352	835	1482	342	493	1114	727	445	1137	240
Arrive On Green	0.12	0.22	0.22	0.24	0.36	0.36	0.14	0.22	0.22	0.13	0.21	0.21
Sat Flow, veh/h	3428	5066	1566	3428	4111	948	3428	5066	1564	3428	5311	1123
Grp Volume(v), veh/h	371	1293	243	962	682	342	440	1735	697	272	734	260
Grp Sat Flow(s),veh/h/ln	1714	1689	1566	1714	1689	1682	1714	1689	1564	1714	1596	1646
Q Serve(g_s), s	14.9	31.5	14.1	34.1	22.6	22.9	17.7	30.8	25.9	10.5	19.9	20.6
Cycle Q Clear(g_c), s	14.9	31.5	14.1	34.1	22.6	22.9	17.7	30.8	25.9	10.5	19.9	20.6
Prop In Lane	1.00		1.00	1.00		0.56	1.00		1.00	1.00		0.68
Lane Grp Cap(c), veh/h	418	1140	352	835	1217	606	493	1114	727	445	1025	352
V/C Ratio(X)	0.89	1.13	0.69	1.15	0.56	0.56	0.89	1.56	0.96	0.61	0.72	0.74
Avail Cap(c_a), veh/h	451	1140	352	835	1217	606	536	1114	727	793	1395	480
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.18	0.18	0.18	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.5	54.3	24.9	52.9	35.9	36.0	58.9	54.6	36.2	57.6	51.1	51.3
Incr Delay (d2), s/veh	3.9	62.8	2.0	81.9	1.9	3.8	16.6	255.0	23.7	0.5	1.3	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	19.6	5.2	23.7	9.3	9.7	8.6	39.0	11.3	4.5	7.9	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.4	117.1	26.9	134.8	37.7	39.7	75.5	309.6	59.9	58.1	52.4	55.8
LnGrp LOS	E	F	C	F	D	D	E	F	E	E	D	E
Approach Vol, veh/h		1907			1986			2872			1266	
Approach Delay, s/veh		95.3			85.1			213.1			54.3	
Approach LOS		F			F			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.4	37.0	40.6	38.0	25.2	36.2	21.7	57.0
Change Period (Y+Rc), s	6.2	* 6.2	6.5	* 6.5	5.1	6.2	4.6	6.5
Max Green Setting (Gmax), s	32.4	* 31	23.4	* 32	21.9	40.8	18.4	36.5
Max Q Clear Time (g_c+I1), s	12.5	32.8	36.1	33.5	19.7	22.6	16.9	24.9
Green Ext Time (p_c), s	0.4	0.0	0.0	0.0	0.5	7.0	0.1	5.4

Intersection Summary	
HCM 6th Ctrl Delay	128.5
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Appendix K
Future Year Base with Project Traffic Volumes

TABLE 4
SUMMARY OF ROADWAY SEGMENT OPERATION
FUTURE YEAR 2035 WITH PROJECT

Roadway	Segment	Functional Classification	Year 2035 Future ADT	Project ADT	Future With Project ADT	Capacity (LOS E)	V/C	LOS	Change in V/C	Signif Impact?	Jurisdiction
	El Camino Real to La Costa Towne Center traffic signal	4-Lane Major Arterial	20,700	100	20,800	40,000	0.520	B	0.003	No	Carlsbad
	La Costa Towne Center traffic signal to Fairway Lane	4-Lane Major Arterial	20,900	100	21,000	40,000	0.525	C	0.003	No	Carlsbad
	Fairway Lane to Calle Madero	3-Lane Collector	20,700	100	20,800	22,500	0.924	**E**	0.004	No	Carlsbad
Leucadia Blvd	North Coast Highway 101 to Vulcan Avenue	4-Lane Collector	14,300	400	14,700	32,400	0.454	C or better	0.012	No	Encinitas
	Vulcan Avenue to Hermes Avenue	2-Lane Local Roadway - Augmented	16,300	200	16,500	20,000	0.825	D	0.010	No	Encinitas
	Hermes Avenue to Hygeia Avenue	2-Lane Local Roadway - Augmented	15,700	200	15,900	20,000	0.795	C or better	0.010	No	Encinitas
	Hygeia Avenue to Hymettus Avenue	2-Lane Local Roadway - Augmented	17,400	200	17,600	20,000	0.880	D	0.010	No	Encinitas
	Hymettus Avenue to Orpheus Avenue	2-Lane Local Roadway - Augmented	19,200	200	19,400	20,000	0.970	**E**	0.010	No	Encinitas
	Orpheus Avenue to I-5 SB Ramps	4-Lane Major Roadway	17,700	200	17,900	35,200	0.509	C or better	0.006	No	Encinitas
	I-5 SB Ramps to I-5 NB Ramps	4-Lane Major Roadway	28,600	400	29,000	35,200	0.824	D	0.011	No	Encinitas
	Piraeus Street to Urania Avenue	4-Lane Major Roadway - Augmented	44,100	600	44,700	45,400	0.985	**E**	0.013	No	Encinitas
	Urania Avenue to Saxony Road	4-Lane Major Roadway - Augmented	44,100	800	44,900	45,400	0.989	**E**	0.018	No	Encinitas
	Saxony Road to Sidonia Street	4-Lane Major Roadway - Augmented	42,400	800	43,200	45,400	0.952	**E**	0.018	No	Encinitas
	Sidonia Street to Quail Gardens Drive	4-Lane Major Roadway - Augmented	42,400	800	43,200	45,400	0.952	**E**	0.018	No	Encinitas
	Quail Gardens Drive to Garden View Road	4-Lane Major Roadway - Augmented	47,100	500	47,600	45,400	1.048	**F**	0.011	No	Encinitas

TABLE 4
SUMMARY OF ROADWAY SEGMENT OPERATION
FUTURE YEAR 2035 WITH PROJECT

Roadway	Segment	Functional Classification	Year 2035 Future ADT	Project ADT	Future With Project ADT	Capacity (LOS E)	V/C	LOS	Change in V/C	Signif Impact?	Jurisdiction
	Garden View Road to Town Center Place	4-Lane Major Roadway - Augmented	34,700	400	35,100	45,400	0.773	C or better	0.009	No	Encinitas
	Town Center Place to El Camino Real	6-Lane Prime Arterial	39,000	500	39,500	57,000	0.693	C or better	0.009	No	Encinitas
Mountain Vista Drive	El Camino Real to Wandering Road	2-Lane Local Roadway - Augmented	15,000	200	15,200	20,000	0.760	C or better	0.010	No	Encinitas
	Wandering Road to Village Park Way	2-Lane Local Roadway - Augmented	9,300	300	9,600	20,000	0.480	C or better	0.015	No	Encinitas
Lone Jack Drive	Rancho Santa Fe Road to northern terminus	2-Lane Local Roadway	8,400	0	8,400	14,000	0.600	C or better	0.000	No	Encinitas
El Camino Del Norte	Rancho Santa Fe Road to San Dieguito CPA boundary	2-Lane Local Roadway	7,900	0	7,900	14,000	0.564	C or better	0.000	No	Encinitas
	San Dieguito CPA boundary to Via De Fortuna	2-Lane Light Collector with Reduced Shoulder	7,800	0	7,800	9,700	0.804	D	0.000	No	San Diego
	North Coast Highway 101 to Vulcan Avenue	4-Lane Collector	22,300	700	23,000	32,400	0.710	C or better	0.022	No	Encinitas
	Vulcan Avenue to I-5 SB Ramps	4-Lane Major Roadway - Augmented	34,100	1,100	35,200	45,400	0.775	C or better	0.024	No	Encinitas

TABLE 4
SUMMARY OF ROADWAY SEGMENT OPERATION
FUTURE YEAR 2035 WITH PROJECT

Roadway	Segment	Functional Classification	Year 2035 Future ADT	Project ADT	Future With Project ADT	Capacity (LOS E)	V/C	LOS	Change in V/C	Signif Impact?	Jurisdiction
	Chesterfield Drive to Manchester Avenue	2-Lane Local Roadway - Augmented	9,500	0	9,500	20,000	0.475	C or better	0.000	No	Encinitas
Saxony Road	La Costa Avenue to Quail Gardens Drive	2-Lane Local Roadway	4,600	200	4,800	14,000	0.343	C or better	0.014	No	Encinitas
	Quail Hollow Drive to Normandy Road	2-Lane Local Roadway	3,400	100	3,500	14,000	0.250	C or better	0.007	No	Encinitas
	Normandy Road to Brittany Avenue	2-Lane Local Roadway	3,900	100	4,000	14,000	0.286	C or better	0.007	No	Encinitas
	Brittany Avenue to Leucadia Blvd	2-Lane Local Roadway	3,500	100	3,600	14,000	0.257	C or better	0.007	No	Encinitas
	Leucadia Blvd to Silver Berry Place	2-Lane Local Roadway	11,800	100	11,900	14,000	0.850	D	0.007	No	Encinitas
	Silver Berry Place to Encinitas Blvd	2-Lane Local Roadway - Augmented	13,800	300	14,100	20,000	0.705	C or better	0.015	No	Encinitas
Quail Hollow Drive	Swallow Tail Road to Saxony Road	2-Lane Local Roadway	5,000	200	5,200	14,000	0.371	C or better	0.014	No	Encinitas
Quail Gardens Drive	Swallow Tail Road to Lauren Court	2-Lane Local Roadway - Augmented	4,900	200	5,100	20,000	0.255	C or better	0.010	No	Encinitas
	Lauren Court to Leucadia Boulevard	2-Lane Local Roadway - Augmented	5,300	200	5,500	20,000	0.275	C or better	0.010	No	Encinitas
	Leucadia Boulevard to Paseo De Las Flores	2-Lane Local Roadway - Augmented	9,100	800	9,900	20,000	0.495	C or better	0.040	No	Encinitas
	Paseo De Las Flores to Paseo De Las Verdes	2-Lane Local Roadway - Augmented	8,900	700	9,600	20,000	0.480	C or better	0.035	No	Encinitas
	Paseo De Las Verdes to Encinitas Boulevard	2-Lane Local Roadway - Augmented	8,200	700	8,900	20,000	0.445	C or better	0.035	No	Encinitas
Westlake Street	Encinitas Boulevard to Requeza Street	2-Lane Local Roadway - Augmented	11,800	1,800	13,600	20,000	0.680	C or better	0.090	No	Encinitas
Nardo Drive	Requeza Street to Melba Road	2-Lane Local Roadway	5,100	0	5,100	14,000	0.364	C or better	0.000	No	Encinitas



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	736	274	614	675	0	0	0	0	224	5	140
Future Volume (veh/h)	0	736	274	614	675	0	0	0	0	224	5	140
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	800	298	667	734	0				247	0	152
Adj No. of Lanes	0	2	1	2	2	0				2	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1183	521	818	2362	0				503	0	224
Arrive On Green	0.00	0.33	0.33	0.24	0.67	0.00				0.14	0.00	0.14
Sat Flow, veh/h	0	3632	1558	3442	3632	0				3548	0	1583
Grp Volume(v), veh/h	0	800	298	667	734	0				247	0	152
Grp Sat Flow(s),veh/h/ln	0	1770	1558	1721	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	10.4	8.4	9.8	4.6	0.0				3.4	0.0	4.9
Cycle Q Clear(g_c), s	0.0	10.4	8.4	9.8	4.6	0.0				3.4	0.0	4.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1183	521	818	2362	0				503	0	224
V/C Ratio(X)	0.00	0.68	0.57	0.82	0.31	0.00				0.49	0.00	0.68
Avail Cap(c_a), veh/h	0	1431	630	1166	2968	0				2324	0	1037
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	15.3	14.6	19.3	3.7	0.0				21.2	0.0	21.8
Incr Delay (d2), s/veh	0.0	0.6	0.4	2.0	0.0	0.0				0.3	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.1	3.6	4.9	2.3	0.0				1.7	0.0	2.2
LnGrp Delay(d),s/veh	0.0	15.9	15.0	21.3	3.8	0.0				21.4	0.0	23.1
LnGrp LOS		B	B	C	A					C		C
Approach Vol, veh/h		1098			1401						399	
Approach Delay, s/veh		15.7			12.1						22.1	
Approach LOS		B			B						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.8	23.0		12.7		40.8		
Change Period (Y+Rc), s	5.1	5.1		5.1		5.1		
Max Green Setting (Gmax), s	18.1	21.6		35.0		44.8		
Max Q Clear Time (g_c+I1), s	11.8	12.4		6.9		6.6		
Green Ext Time (p_c), s	0.9	5.4		0.7		10.3		

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	765	281	506	715	0	0	0	0	380	0	220
Future Volume (veh/h)	0	765	281	506	715	0	0	0	0	380	0	220
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	832	305	550	777	0				413	0	239
Adj No. of Lanes	0	2	1	2	2	0				2	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1207	536	680	2217	0				703	0	314
Arrive On Green	0.00	0.34	0.34	0.20	0.63	0.00				0.20	0.00	0.20
Sat Flow, veh/h	0	3632	1572	3442	3632	0				3548	0	1583
Grp Volume(v), veh/h	0	832	305	550	777	0				413	0	239
Grp Sat Flow(s),veh/h/ln	0	1770	1572	1721	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	11.8	9.2	8.9	6.1	0.0				6.1	0.0	8.3
Cycle Q Clear(g_c), s	0.0	11.8	9.2	8.9	6.1	0.0				6.1	0.0	8.3
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1207	536	680	2217	0				703	0	314
V/C Ratio(X)	0.00	0.69	0.57	0.81	0.35	0.00				0.59	0.00	0.76
Avail Cap(c_a), veh/h	0	1450	644	942	2729	0				2137	0	954
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	16.5	15.7	22.3	5.2	0.0				21.1	0.0	22.0
Incr Delay (d2), s/veh	0.0	0.7	0.4	2.5	0.0	0.0				0.3	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.8	4.0	4.4	2.9	0.0				3.0	0.0	3.7
LnGrp Delay(d),s/veh	0.0	17.2	16.0	24.8	5.2	0.0				21.4	0.0	23.5
LnGrp LOS		B	B	C	A					C		C
Approach Vol, veh/h		1137			1327						652	
Approach Delay, s/veh		16.9			13.3						22.2	
Approach LOS		B			B						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	16.6	24.9		16.6		41.5		
Change Period (Y+Rc), s	5.1	5.1		5.1		5.1		
Max Green Setting (Gmax), s	15.9	23.8		35.0		44.8		
Max Q Clear Time (g_c+I1), s	10.9	13.8		10.3		8.1		
Green Ext Time (p_c), s	0.6	6.0		1.2		11.0		

Intersection Summary	
HCM 2010 Ctrl Delay	16.5
HCM 2010 LOS	B

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	670	0	0	1128	460	171	85	317	0	0	0
Future Volume (veh/h)	240	670	0	0	1128	460	171	85	317	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	1863	1863			
Adj Flow Rate, veh/h	261	728	0	0	1226	500	139	158	345			
Adj No. of Lanes	1	2	0	0	3	0	1	1	2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	293	2639	0	0	1846	749	244	257	436			
Arrive On Green	0.28	1.00	0.00	0.00	0.87	0.87	0.14	0.14	0.14			
Sat Flow, veh/h	1774	3632	0	0	3694	1431	1774	1863	3167			
Grp Volume(v), veh/h	261	728	0	0	1179	547	139	158	345			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1695	1566	1774	1863	1583			
Q Serve(g_s), s	12.7	0.0	0.0	0.0	9.4	9.5	6.6	7.2	9.5			
Cycle Q Clear(g_c), s	12.7	0.0	0.0	0.0	9.4	9.5	6.6	7.2	9.5			
Prop In Lane	1.00		0.00	0.00		0.91	1.00		1.00			
Lane Grp Cap(c), veh/h	293	2639	0	0	1775	820	244	257	436			
V/C Ratio(X)	0.89	0.28	0.00	0.00	0.66	0.67	0.57	0.62	0.79			
Avail Cap(c_a), veh/h	392	2639	0	0	1775	820	333	350	595			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.67	1.67	1.00	1.00	1.00			
Upstream Filter(I)	0.69	0.69	0.00	0.00	0.55	0.55	1.00	1.00	1.00			
Uniform Delay (d), s/veh	31.8	0.0	0.0	0.0	3.3	3.3	36.3	36.6	37.5			
Incr Delay (d2), s/veh	10.8	0.2	0.0	0.0	1.1	2.4	0.8	0.9	3.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.0	0.1	0.0	0.0	4.1	4.1	3.3	3.8	4.3			
LnGrp Delay(d),s/veh	42.6	0.2	0.0	0.0	4.4	5.7	37.1	37.5	41.0			
LnGrp LOS	D	A			A	A	D	D	D			
Approach Vol, veh/h		989			1726			642				
Approach Delay, s/veh		11.4			4.8			39.3				
Approach LOS		B			A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		72.5			20.0	52.5		17.5
Change Period (Y+Rc), s		5.4			5.1	5.4		5.1
Max Green Setting (Gmax), s		62.6			19.9	37.6		16.9
Max Q Clear Time (g_c+I1), s		2.0			14.7	11.5		11.5
Green Ext Time (p_c), s		22.5			0.2	15.5		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	13.3
HCM 2010 LOS	B

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	895	0	0	1016	595	205	90	734	0	0	0
Future Volume (veh/h)	250	895	0	0	1016	595	205	90	734	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	1863	1863			
Adj Flow Rate, veh/h	272	973	0	0	1104	647	160	185	798			
Adj No. of Lanes	1	2	0	0	3	0	1	1	2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	307	2265	0	0	1390	649	432	453	754			
Arrive On Green	0.17	0.64	0.00	0.00	0.41	0.41	0.24	0.24	0.24			
Sat Flow, veh/h	1774	3632	0	0	3558	1583	1774	1863	3099			
Grp Volume(v), veh/h	272	973	0	0	1104	647	160	185	798			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1695	1583	1774	1863	1549			
Q Serve(g_s), s	13.5	12.3	0.0	0.0	25.6	36.7	6.8	7.5	21.9			
Cycle Q Clear(g_c), s	13.5	12.3	0.0	0.0	25.6	36.7	6.8	7.5	21.9			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	307	2265	0	0	1390	649	432	453	754			
V/C Ratio(X)	0.88	0.43	0.00	0.00	0.79	1.00	0.37	0.41	1.06			
Avail Cap(c_a), veh/h	365	2265	0	0	1390	649	432	453	754			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.66	0.66	0.00	0.00	0.47	0.47	1.00	1.00	1.00			
Uniform Delay (d), s/veh	36.3	8.0	0.0	0.0	23.2	26.5	28.3	28.6	34.0			
Incr Delay (d2), s/veh	12.7	0.4	0.0	0.0	2.3	23.5	0.2	0.2	49.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.7	6.1	0.0	0.0	12.4	20.2	3.3	3.9	14.5			
LnGrp Delay(d),s/veh	49.0	8.4	0.0	0.0	25.5	49.9	28.5	28.8	83.4			
LnGrp LOS	D	A			C	D	C	C	F			
Approach Vol, veh/h		1245			1751			1143				
Approach Delay, s/veh		17.3			34.5			66.9				
Approach LOS		B			C			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		63.0			20.7	42.3		27.0
Change Period (Y+Rc), s		5.4			5.1	5.4		5.1
Max Green Setting (Gmax), s		57.6			18.5	34.0		21.9
Max Q Clear Time (g_c+I1), s		14.3			15.5	38.7		23.9
Green Ext Time (p_c), s		23.5			0.1	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	38.3
HCM 2010 LOS	D

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	1087	310	292	1207	60	121	70	111	100	252	60
Future Volume (veh/h)	100	1087	310	292	1207	60	121	70	111	100	252	60
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	109	1182	282	317	1312	58	132	76	121	109	274	65
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	132	1229	290	311	1844	81	133	134	213	108	280	66
Arrive On Green	0.07	0.43	0.43	0.18	0.53	0.53	0.08	0.21	0.21	0.06	0.19	0.19
Sat Flow, veh/h	1774	2834	669	1774	3448	152	1774	645	1026	1774	1448	343
Grp Volume(v), veh/h	109	733	731	317	672	698	132	0	197	109	0	339
Grp Sat Flow(s),veh/h/ln	1774	1770	1733	1774	1770	1831	1774	0	1671	1774	0	1791
Q Serve(g_s), s	8.5	56.0	57.8	24.5	39.9	40.1	10.4	0.0	14.8	8.5	0.0	26.3
Cycle Q Clear(g_c), s	8.5	56.0	57.8	24.5	39.9	40.1	10.4	0.0	14.8	8.5	0.0	26.3
Prop In Lane	1.00		0.39	1.00		0.08	1.00		0.61	1.00		0.19
Lane Grp Cap(c), veh/h	132	767	751	311	946	979	133	0	347	108	0	346
V/C Ratio(X)	0.83	0.96	0.97	1.02	0.71	0.71	0.99	0.00	0.57	1.01	0.00	0.98
Avail Cap(c_a), veh/h	197	778	762	311	946	979	133	0	347	108	0	346
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.8	38.3	38.8	57.7	24.4	24.5	64.6	0.0	49.8	65.7	0.0	56.1
Incr Delay (d2), s/veh	10.5	21.8	25.7	56.2	2.4	2.3	74.9	0.0	1.4	89.6	0.0	42.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	31.9	33.0	16.8	20.0	20.8	7.8	0.0	7.0	6.8	0.0	17.1
LnGrp Delay(d),s/veh	74.3	60.1	64.5	113.9	26.8	26.8	139.5	0.0	51.2	155.3	0.0	98.9
LnGrp LOS	E	E	E	F	C	C	F		D	F		F
Approach Vol, veh/h		1573			1687			329			448	
Approach Delay, s/veh		63.1			43.2			86.6			112.6	
Approach LOS		E			D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	65.9	14.0	31.9	13.9	80.0	12.0	33.9
Change Period (Y+Rc), s	3.5	5.3	3.5	* 4.9	3.5	5.3	3.5	4.9
Max Green Setting (Gmax), s	14.5	61.5	10.5	* 27	15.5	70.5	8.5	28.3
Max Q Clear Time (g_c+I1), s	10.5	59.8	12.4	28.3	10.5	42.1	10.5	16.8
Green Ext Time (p_c), s	0.0	0.9	0.0	0.0	0.1	21.5	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	62.2
HCM 2010 LOS	E

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1452	260	201	1206	70	214	162	265	60	151	50
Future Volume (veh/h)	90	1452	260	201	1206	70	214	162	265	60	151	50
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	98	1578	268	218	1311	71	233	176	288	65	164	54
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	1509	251	183	1821	98	195	158	259	65	235	78
Arrive On Green	0.07	0.50	0.50	0.10	0.53	0.53	0.11	0.25	0.25	0.04	0.18	0.18
Sat Flow, veh/h	1774	3039	505	1774	3415	185	1774	637	1042	1774	1343	442
Grp Volume(v), veh/h	98	904	942	218	678	704	233	0	464	65	0	218
Grp Sat Flow(s),veh/h/ln	1774	1770	1774	1774	1770	1830	1774	0	1679	1774	0	1785
Q Serve(g_s), s	8.2	74.5	74.5	15.5	43.5	43.7	16.5	0.0	37.3	5.5	0.0	17.2
Cycle Q Clear(g_c), s	8.2	74.5	74.5	15.5	43.5	43.7	16.5	0.0	37.3	5.5	0.0	17.2
Prop In Lane	1.00		0.28	1.00		0.10	1.00		0.62	1.00		0.25
Lane Grp Cap(c), veh/h	119	879	881	183	943	976	195	0	417	65	0	313
V/C Ratio(X)	0.83	1.03	1.07	1.19	0.72	0.72	1.19	0.00	1.11	1.00	0.00	0.70
Avail Cap(c_a), veh/h	148	879	881	183	943	976	195	0	417	65	0	321
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	69.1	37.7	37.8	67.3	26.5	26.6	66.8	0.0	56.4	72.2	0.0	58.1
Incr Delay (d2), s/veh	21.4	37.8	50.7	126.6	2.5	2.5	126.5	0.0	77.8	111.3	0.0	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	45.6	48.9	14.0	22.0	22.8	14.9	0.0	26.3	4.7	0.0	8.9
LnGrp Delay(d),s/veh	90.6	75.6	88.4	193.9	29.0	29.1	193.2	0.0	134.2	183.6	0.0	63.3
LnGrp LOS	F	F	F	F	C	C	F		F	F		E
Approach Vol, veh/h		1944			1600			697			283	
Approach Delay, s/veh		82.6			51.5			153.9			90.9	
Approach LOS		F			D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	79.8	20.0	31.2	13.5	85.3	9.0	42.2
Change Period (Y+Rc), s	3.5	5.3	3.5	* 4.9	3.5	5.3	3.5	4.9
Max Green Setting (Gmax), s	5.5	74.5	16.5	* 27	12.5	77.5	5.5	37.3
Max Q Clear Time (g_c+I1), s	17.5	76.5	18.5	19.2	10.2	45.7	7.5	39.3
Green Ext Time (p_c), s	0.0	0.0	0.0	2.0	0.0	26.6	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	83.1
HCM 2010 LOS	F

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	935	166	391	1189	116	148	62	170	104	116	87
Future Volume (veh/h)	67	935	166	391	1189	116	148	62	170	104	116	87
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	73	1016	156	425	1292	117	161	67	185	113	126	95
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	1101	169	446	1829	165	276	426	361	301	426	356
Arrive On Green	0.05	0.36	0.36	0.25	0.56	0.56	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1774	3071	471	1774	3284	296	1153	1863	1579	1121	1863	1559
Grp Volume(v), veh/h	73	585	587	425	694	715	161	67	185	113	126	95
Grp Sat Flow(s),veh/h/ln	1774	1770	1772	1774	1770	1810	1153	1863	1579	1121	1863	1559
Q Serve(g_s), s	3.8	29.6	29.7	22.0	26.7	27.0	12.5	2.7	9.6	8.4	5.2	4.7
Cycle Q Clear(g_c), s	3.8	29.6	29.7	22.0	26.7	27.0	17.8	2.7	9.6	11.1	5.2	4.7
Prop In Lane	1.00		0.27	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	634	635	446	986	1009	276	426	361	301	426	356
V/C Ratio(X)	0.78	0.92	0.92	0.95	0.70	0.71	0.58	0.16	0.51	0.38	0.30	0.27
Avail Cap(c_a), veh/h	123	651	652	446	986	1009	346	538	456	369	538	450
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	28.7	28.8	34.4	15.1	15.1	37.2	28.8	31.5	33.3	29.8	29.6
Incr Delay (d2), s/veh	14.8	19.0	19.3	30.5	2.4	2.4	0.7	0.1	0.4	0.3	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	17.8	17.9	14.5	13.6	14.0	4.0	1.4	4.2	2.6	2.7	2.0
LnGrp Delay(d),s/veh	58.5	47.7	48.0	64.9	17.5	17.6	37.9	28.9	31.9	33.6	30.0	29.8
LnGrp LOS	E	D	D	E	B	B	D	C	C	C	C	C
Approach Vol, veh/h		1245			1834			413			334	
Approach Delay, s/veh		48.5			28.5			33.8			31.1	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.0	40.2		26.3	8.4	58.8		26.3
Change Period (Y+Rc), s	3.5	6.7		4.9	3.5	6.7		4.9
Max Green Setting (Gmax), s	3.5	34.4		27.0	6.5	51.4		27.0
Max Q Clear Time (g_c+I1), s	4.0	31.7		13.1	5.8	29.0		19.8
Green Ext Time (p_c), s	0.0	1.8		1.6	0.0	20.4		1.3

Intersection Summary		
HCM 2010 Ctrl Delay		35.8
HCM 2010 LOS		D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	1740	144	239	1108	117	135	91	332	85	81	74
Future Volume (veh/h)	103	1740	144	239	1108	117	135	91	332	85	81	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	112	1891	150	260	1204	116	147	99	160	92	88	80
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	135	1890	148	251	2068	199	221	336	280	202	336	285
Arrive On Green	0.08	0.57	0.57	0.14	0.63	0.63	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1774	3326	260	1774	3263	314	1208	1863	1553	1113	1863	1575
Grp Volume(v), veh/h	112	994	1047	260	652	668	147	99	160	92	88	80
Grp Sat Flow(s),veh/h/ln	1774	1770	1817	1774	1770	1807	1208	1863	1553	1113	1863	1575
Q Serve(g_s), s	8.6	76.3	78.3	19.5	29.4	29.6	16.4	6.3	13.0	10.7	5.6	6.0
Cycle Q Clear(g_c), s	8.6	76.3	78.3	19.5	29.4	29.6	22.0	6.3	13.0	17.1	5.6	6.0
Prop In Lane	1.00		0.14	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	135	1006	1032	251	1122	1145	221	336	280	202	336	285
V/C Ratio(X)	0.83	0.99	1.01	1.04	0.58	0.58	0.66	0.29	0.57	0.46	0.26	0.28
Avail Cap(c_a), veh/h	187	1006	1032	251	1122	1145	241	366	305	220	366	310
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.8	29.3	29.7	59.1	14.6	14.7	58.0	48.9	51.6	56.2	48.5	48.7
Incr Delay (d2), s/veh	14.5	25.6	31.5	66.3	0.8	0.8	4.4	0.2	1.1	0.6	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	44.2	48.0	14.1	14.6	14.9	5.7	3.3	5.6	3.3	2.9	2.6
LnGrp Delay(d),s/veh	77.3	54.9	61.2	125.5	15.5	15.5	62.4	49.0	52.6	56.8	48.7	48.9
LnGrp LOS	E	D	F	F	B	B	E	D	D	E	D	D
Approach Vol, veh/h		2153			1580			406			260	
Approach Delay, s/veh		59.1			33.6			55.3			51.7	
Approach LOS		E			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	23.0	85.0		29.8	14.0	94.0		29.8
Change Period (Y+Rc), s	3.5	6.7		4.9	3.5	6.7		4.9
Max Green Setting (Gmax), s	19.5	78.3		27.1	14.5	83.3		27.1
Max Q Clear Time (g_c+I1), s	21.5	80.3		19.1	10.6	31.6		24.0
Green Ext Time (p_c), s	0.0	0.0		1.1	0.0	50.1		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	49.2
HCM 2010 LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	727	280	200	1226	90	210	90	50	40	160	330
Future Volume (veh/h)	172	727	280	200	1226	90	210	90	50	40	160	330
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	187	790	218	217	1333	86	228	98	54	43	174	359
Adj No. of Lanes	2	2	0	2	2	0	2	2	0	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	524	1420	392	270	1448	93	279	539	277	83	323	288
Arrive On Green	0.25	0.87	0.87	0.13	0.72	0.72	0.08	0.24	0.24	0.02	0.18	0.18
Sat Flow, veh/h	3442	2732	754	3442	3377	217	3442	2251	1157	3442	1770	1581
Grp Volume(v), veh/h	187	512	496	217	697	722	228	76	76	43	174	359
Grp Sat Flow(s),veh/h/ln	1721	1770	1716	1721	1770	1824	1721	1770	1639	1721	1770	1581
Q Serve(g_s), s	5.8	9.6	9.6	8.0	42.5	43.0	8.5	4.4	4.8	1.6	11.6	23.7
Cycle Q Clear(g_c), s	5.8	9.6	9.6	8.0	42.5	43.0	8.5	4.4	4.8	1.6	11.6	23.7
Prop In Lane	1.00		0.44	1.00		0.12	1.00		0.71	1.00		1.00
Lane Grp Cap(c), veh/h	524	920	892	270	759	783	279	423	392	83	323	288
V/C Ratio(X)	0.36	0.56	0.56	0.80	0.92	0.92	0.82	0.18	0.20	0.52	0.54	1.25
Avail Cap(c_a), veh/h	524	920	892	357	903	930	304	423	392	146	323	288
HCM Platoon Ratio	1.67	1.67	1.67	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	4.8	4.8	55.5	16.6	16.6	58.8	39.3	39.5	62.7	48.2	53.2
Incr Delay (d2), s/veh	0.4	2.4	2.5	8.0	15.5	15.6	14.7	0.2	0.2	4.8	1.8	136.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	5.1	4.9	4.1	23.3	24.4	4.6	2.2	2.2	0.8	5.8	21.2
LnGrp Delay(d),s/veh	43.7	7.2	7.3	63.5	32.1	32.2	73.5	39.5	39.7	67.5	50.0	189.4
LnGrp LOS	D	A	A	E	C	C	E	D	D	E	D	F
Approach Vol, veh/h		1195			1636			380			576	
Approach Delay, s/veh		12.9			36.3			59.9			138.2	
Approach LOS		B			D			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.7	73.3	14.1	29.0	25.5	61.5	6.7	36.4
Change Period (Y+Rc), s	3.5	5.7	3.5	5.3	5.7	* 5.7	3.5	5.3
Max Green Setting (Gmax), s	10.5	63.3	11.5	23.7	10.5	* 66	5.5	29.7
Max Q Clear Time (g_c+I1), s	10.0	11.6	10.5	25.7	7.8	45.0	3.6	6.8
Green Ext Time (p_c), s	0.2	9.7	0.1	0.0	1.8	10.7	0.0	4.6

Intersection Summary	
HCM 2010 Ctrl Delay	46.8
HCM 2010 LOS	D

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	410	1407	370	150	1131	220	310	140	80	110	120	343
Future Volume (veh/h)	410	1407	370	150	1131	220	310	140	80	110	120	343
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	446	1529	337	163	1229	223	337	152	74	120	130	308
Adj No. of Lanes	2	2	0	2	2	0	2	2	0	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	514	1621	346	279	1517	273	370	203	94	447	193	172
Arrive On Green	0.25	0.93	0.93	0.16	1.00	1.00	0.11	0.09	0.09	0.13	0.11	0.11
Sat Flow, veh/h	3442	2902	620	3442	2997	540	3442	2349	1091	3442	1770	1583
Grp Volume(v), veh/h	446	914	952	163	722	730	337	113	113	120	130	308
Grp Sat Flow(s),veh/h/ln	1721	1770	1753	1721	1770	1767	1721	1770	1670	1721	1770	1583
Q Serve(g_s), s	16.8	34.1	53.2	5.9	0.0	0.0	13.1	8.4	9.0	4.2	9.5	14.7
Cycle Q Clear(g_c), s	16.8	34.1	53.2	5.9	0.0	0.0	13.1	8.4	9.0	4.2	9.5	14.7
Prop In Lane	1.00		0.35	1.00		0.31	1.00		0.65	1.00		1.00
Lane Grp Cap(c), veh/h	514	988	979	279	896	895	370	153	144	447	193	172
V/C Ratio(X)	0.87	0.92	0.97	0.58	0.81	0.82	0.91	0.74	0.78	0.27	0.67	1.79
Avail Cap(c_a), veh/h	854	1039	1030	279	896	895	370	258	244	447	193	172
HCM Platoon Ratio	1.67	1.67	1.67	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.4	3.2	3.8	54.5	0.0	0.0	59.6	60.2	60.4	53.0	57.9	60.2
Incr Delay (d2), s/veh	5.3	15.4	22.9	2.1	5.2	5.6	26.1	6.7	9.0	0.3	8.9	376.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	18.1	27.8	2.9	1.3	1.4	7.6	4.4	4.5	2.0	5.1	24.4
LnGrp Delay(d),s/veh	54.6	18.5	26.7	56.6	5.2	5.6	85.7	66.9	69.4	53.3	66.8	436.4
LnGrp LOS	D	B	C	E	A	A	F	E	E	D	E	F
Approach Vol, veh/h		2312			1615			563			558	
Approach Delay, s/veh		28.8			10.6			78.7			267.9	
Approach LOS		C			B			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	79.3	18.0	20.0	23.7	73.3	21.0	17.0
Change Period (Y+Rc), s	5.7	* 5.7	3.5	5.3	3.5	5.7	3.5	5.3
Max Green Setting (Gmax), s	8.5	* 79	14.5	14.7	33.5	54.3	9.5	19.7
Max Q Clear Time (g_c+I1), s	11.9	55.2	15.1	16.7	18.8	2.0	6.2	11.0
Green Ext Time (p_c), s	0.0	16.6	0.0	0.0	1.4	17.4	0.6	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	55.0
HCM 2010 LOS	D

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	695	152	280	1176	265	95	55	155	100	70	100
Future Volume (veh/h)	70	695	152	280	1176	265	95	55	155	100	70	100
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	76	755	165	304	1278	288	82	90	168	92	99	109
Adj No. of Lanes	2	2	1	2	2	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	681	1986	876	357	1604	851	214	225	191	151	159	135
Arrive On Green	0.33	0.94	0.94	0.17	0.76	0.76	0.12	0.12	0.12	0.09	0.09	0.09
Sat Flow, veh/h	3442	3539	1561	3442	3539	1581	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	76	755	165	304	1278	288	82	90	168	92	99	109
Grp Sat Flow(s),veh/h/ln	1721	1770	1561	1721	1770	1581	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	2.0	2.7	1.1	11.1	28.8	7.0	5.5	5.8	13.6	6.5	6.7	8.8
Cycle Q Clear(g_c), s	2.0	2.7	1.1	11.1	28.8	7.0	5.5	5.8	13.6	6.5	6.7	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	681	1986	876	357	1604	851	214	225	191	151	159	135
V/C Ratio(X)	0.11	0.38	0.19	0.85	0.80	0.34	0.38	0.40	0.88	0.61	0.62	0.81
Avail Cap(c_a), veh/h	681	1986	876	543	2006	1031	232	244	207	205	215	183
HCM Platoon Ratio	1.67	1.67	1.67	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	0.76	0.56	0.56	0.56	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.6	1.9	1.8	52.7	12.2	6.9	52.7	52.8	56.2	57.4	57.5	58.4
Incr Delay (d2), s/veh	0.0	0.4	0.4	3.0	2.4	0.6	0.4	0.4	29.1	1.5	1.5	12.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.3	0.5	5.4	14.1	3.6	2.7	3.0	7.5	3.3	3.5	4.3
LnGrp Delay(d),s/veh	35.6	2.3	2.2	55.7	14.6	7.5	53.1	53.2	85.3	58.9	59.0	71.1
LnGrp LOS	D	A	A	E	B	A	D	D	F	E	E	E
Approach Vol, veh/h		996			1870			340			300	
Approach Delay, s/veh		4.8			20.2			69.0			63.3	
Approach LOS		A			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	78.2		15.1	31.0	64.2		19.7
Change Period (Y+Rc), s	3.5	5.3		4.0	5.3	* 5.3		4.0
Max Green Setting (Gmax), s	20.5	60.7		15.0	7.5	* 74		17.0
Max Q Clear Time (g_c+I1), s	13.1	4.7		10.8	4.0	30.8		15.6
Green Ext Time (p_c), s	0.4	15.4		0.3	2.5	28.1		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	24.2
HCM 2010 LOS	C

Notes

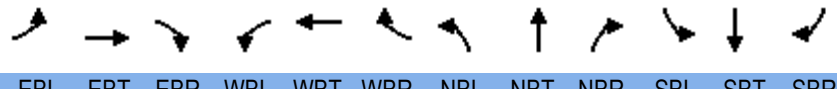


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	1217	330	340	829	282	382	100	400	204	70	150
Future Volume (veh/h)	160	1217	330	340	829	282	382	100	400	204	70	150
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	174	1323	158	370	901	264	262	323	359	149	178	141
Adj No. of Lanes	2	2	1	2	2	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	738	1578	695	415	1198	709	355	373	310	194	204	169
Arrive On Green	0.43	0.89	0.89	0.20	0.57	0.57	0.20	0.20	0.20	0.11	0.11	0.11
Sat Flow, veh/h	3442	3539	1559	3442	3539	1583	1774	1863	1549	1774	1863	1550
Grp Volume(v), veh/h	174	1323	158	370	901	264	262	323	359	149	178	141
Grp Sat Flow(s),veh/h/ln	1721	1770	1559	1721	1770	1583	1774	1863	1549	1774	1863	1550
Q Serve(g_s), s	4.3	21.7	1.9	14.1	26.0	11.3	18.7	22.7	27.0	11.0	12.7	12.0
Cycle Q Clear(g_c), s	4.3	21.7	1.9	14.1	26.0	11.3	18.7	22.7	27.0	11.0	12.7	12.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	738	1578	695	415	1198	709	355	373	310	194	204	169
V/C Ratio(X)	0.24	0.84	0.23	0.89	0.75	0.37	0.74	0.87	1.16	0.77	0.87	0.83
Avail Cap(c_a), veh/h	738	1578	695	446	1696	932	355	373	310	197	207	172
HCM Platoon Ratio	2.00	2.00	2.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.29	0.29	0.29	0.61	0.61	0.61	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	5.2	4.2	53.1	25.0	15.6	50.7	52.3	54.0	58.5	59.2	58.9
Incr Delay (d2), s/veh	0.0	1.7	0.2	12.1	2.7	0.9	7.0	18.2	101.3	14.9	29.9	26.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	9.7	0.8	7.4	13.0	6.0	9.9	13.6	20.3	6.2	8.2	6.4
LnGrp Delay(d),s/veh	31.5	6.9	4.4	65.2	27.8	16.5	57.7	70.5	155.3	73.3	89.1	85.0
LnGrp LOS	C	A	A	E	C	B	E	E	F	E	F	F
Approach Vol, veh/h		1655			1535			944			468	
Approach Delay, s/veh		9.3			34.8			99.2			82.8	
Approach LOS		A			C			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	65.5		18.8	34.2	51.0		31.0
Change Period (Y+Rc), s	3.5	5.3		4.0	5.3	* 5.3		4.0
Max Green Setting (Gmax), s	7.5	58.7		15.0	11.5	* 65		27.0
Max Q Clear Time (g_c+I1), s	6.1	23.7		14.7	6.3	28.0		29.0
Green Ext Time (p_c), s	0.1	24.3		0.0	4.6	17.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	43.7
HCM 2010 LOS	D

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	660	193	1164	1393	160	159	677	513	191	1326	144
Future Volume (veh/h)	132	660	193	1164	1393	160	159	677	513	191	1326	144
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	143	717	210	1265	1514	174	173	736	558	208	1441	137
Adj No. of Lanes	2	3	1	2	3	0	2	3	1	2	4	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	191	746	229	1290	2156	248	184	1055	912	319	1562	148
Arrive On Green	0.09	0.24	0.24	0.37	0.47	0.47	0.09	0.35	0.35	0.15	0.44	0.44
Sat Flow, veh/h	3442	5085	1564	3442	4628	531	3442	5085	1538	3442	5990	569
Grp Volume(v), veh/h	143	717	210	1265	1109	579	173	736	558	208	1156	422
Grp Sat Flow(s),veh/h/ln	1721	1695	1564	1721	1695	1769	1721	1695	1538	1721	1602	1753
Q Serve(g_s), s	5.5	18.8	17.6	49.1	35.0	35.1	6.7	16.8	20.0	7.7	30.6	30.7
Cycle Q Clear(g_c), s	5.5	18.8	17.6	49.1	35.0	35.1	6.7	16.8	20.0	7.7	30.6	30.7
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	191	746	229	1290	1580	824	184	1055	912	319	1253	457
V/C Ratio(X)	0.75	0.96	0.92	0.98	0.70	0.70	0.94	0.70	0.61	0.65	0.92	0.92
Avail Cap(c_a), veh/h	260	746	229	1290	1580	824	184	1254	973	319	1253	457
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.67	1.67	1.67	1.67	1.67	1.67
Upstream Filter(I)	0.91	0.91	0.91	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.3	50.6	50.2	41.7	28.6	28.6	61.3	40.5	5.3	55.0	36.8	36.8
Incr Delay (d2), s/veh	4.2	22.4	35.1	20.4	1.5	2.8	47.8	3.6	2.9	10.0	12.5	26.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	10.3	9.8	26.8	16.6	17.7	4.4	8.2	8.8	4.1	14.8	18.1
LnGrp Delay(d),s/veh	64.5	73.0	85.3	62.1	30.1	31.5	109.1	44.1	8.2	65.0	49.4	63.7
LnGrp LOS	E	E	F	E	C	C	F	D	A	E	D	E
Approach Vol, veh/h		1070			2953			1467			1786	
Approach Delay, s/veh		74.3			44.1			38.1			54.6	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.2	26.3	11.8	41.7	12.1	69.4	19.0	34.5
Change Period (Y+Rc), s	4.6	6.5	4.6	6.5	4.6	6.5	6.5	* 6.5
Max Green Setting (Gmax), s	10.6	19.8	7.2	35.2	10.2	60.2	9.1	* 33
Max Q Clear Time (g_c+I1), s	11.1	20.8	8.7	32.7	7.5	37.1	9.7	22.0
Green Ext Time (p_c), s	0.0	0.0	0.0	2.0	0.1	19.9	0.0	6.0

Intersection Summary	
HCM 2010 Ctrl Delay	49.9
HCM 2010 LOS	D

Notes



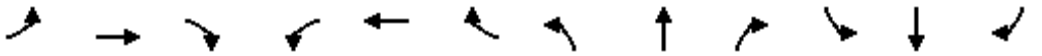
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	343	1194	254	933	820	201	408	1596	835	250	752	203
Future Volume (veh/h)	343	1194	254	933	820	201	408	1596	835	250	752	203
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	373	1298	276	1014	891	218	443	1735	796	272	817	166
Adj No. of Lanes	2	3	1	2	3	0	2	3	1	2	4	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	421	1074	328	801	1369	334	1102	2330	1078	265	1086	216
Arrive On Green	0.20	0.35	0.35	0.23	0.34	0.34	0.53	0.77	0.77	0.13	0.34	0.34
Sat Flow, veh/h	3442	5085	1552	3442	4083	994	3442	5085	1549	3442	5405	1074
Grp Volume(v), veh/h	373	1298	276	1014	739	370	443	1735	796	272	724	259
Grp Sat Flow(s),veh/h/ln	1721	1695	1552	1721	1695	1687	1721	1695	1549	1721	1602	1673
Q Serve(g_s), s	14.2	28.5	22.1	31.4	25.0	25.2	10.3	25.1	23.6	10.4	18.1	18.7
Cycle Q Clear(g_c), s	14.2	28.5	22.1	31.4	25.0	25.2	10.3	25.1	23.6	10.4	18.1	18.7
Prop In Lane	1.00		1.00	1.00		0.59	1.00		1.00	1.00		0.64
Lane Grp Cap(c), veh/h	421	1074	328	801	1137	566	1102	2330	1078	265	966	336
V/C Ratio(X)	0.89	1.21	0.84	1.27	0.65	0.65	0.40	0.74	0.74	1.03	0.75	0.77
Avail Cap(c_a), veh/h	510	1074	328	801	1137	566	1102	2330	1078	265	1371	477
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.67	1.67	1.67	1.67	1.67	1.67
Upstream Filter(I)	0.45	0.45	0.45	1.00	1.00	1.00	0.62	0.62	0.62	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	43.7	41.6	51.8	38.1	38.2	23.7	11.5	3.4	58.8	41.8	42.0
Incr Delay (d2), s/veh	6.6	98.2	8.9	129.9	1.4	2.9	0.1	1.4	2.8	62.1	5.3	15.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	23.0	10.2	29.3	11.9	12.2	4.8	11.8	8.6	7.2	8.4	10.1
LnGrp Delay(d),s/veh	59.4	141.9	50.6	181.7	39.5	41.1	23.8	12.9	6.3	121.0	47.2	57.6
LnGrp LOS	E	F	D	F	D	D	C	B	A	F	D	E
Approach Vol, veh/h		1947			2123			2974			1255	
Approach Delay, s/veh		113.2			107.7			12.7			65.3	
Approach LOS		F			F			B			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.9	35.0	49.7	33.6	21.1	51.8	15.0	68.4
Change Period (Y+Rc), s	6.5	* 6.5	6.5	* 6.5	4.6	6.5	4.6	6.5
Max Green Setting (Gmax), s	11.4	* 29	14.4	* 39	20.0	39.9	10.4	42.5
Max Q Clear Time (g_c+I1), s	13.4	30.5	12.3	20.7	16.2	27.2	12.4	27.1
Green Ext Time (p_c), s	0.0	0.0	2.0	6.4	0.3	8.4	0.0	13.5

Intersection Summary	
HCM 2010 Ctrl Delay	68.5
HCM 2010 LOS	E

Notes

Appendix L
Peak Hour Intersection Capacity Worksheets
Future Year Base with Project Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	736	274	614	675	0	0	0	0	224	5	140
Future Volume (veh/h)	0	736	274	614	675	0	0	0	0	224	5	140
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	800	252	640	703	0				240	0	129
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	1163	508	813	2356	0				457	0	204
Arrive On Green	0.00	0.33	0.33	0.24	0.67	0.00				0.13	0.00	0.13
Sat Flow, veh/h	0	3618	1541	3428	3618	0				3534	0	1572
Grp Volume(v), veh/h	0	800	252	640	703	0				240	0	129
Grp Sat Flow(s),veh/h/ln	0	1763	1541	1714	1763	0				1767	0	1572
Q Serve(g_s), s	0.0	9.9	6.6	8.8	4.2	0.0				3.2	0.0	3.9
Cycle Q Clear(g_c), s	0.0	9.9	6.6	8.8	4.2	0.0				3.2	0.0	3.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1163	508	813	2356	0				457	0	204
V/C Ratio(X)	0.00	0.69	0.50	0.79	0.30	0.00				0.52	0.00	0.63
Avail Cap(c_a), veh/h	0	2798	1223	1701	4904	0				1753	0	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.6	13.5	18.0	3.5	0.0				20.5	0.0	20.8
Incr Delay (d2), s/veh	0.0	0.3	0.3	0.7	0.0	0.0				0.3	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.4	2.0	3.0	0.6	0.0				1.2	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.9	13.8	18.7	3.5	0.0				20.8	0.0	22.0
LnGrp LOS	A	B	B	B	A	A				C	A	C
Approach Vol, veh/h		1052			1343						369	
Approach Delay, s/veh		14.6			10.7						21.3	
Approach LOS		B			B						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	17.0	21.7		11.6		38.8
Change Period (Y+Rc), s	5.1	5.1		5.1		5.1
Max Green Setting (Gmax), s	25.0	40.0		25.0		70.1
Max Q Clear Time (g_c+I1), s	10.8	11.9		5.9		6.2
Green Ext Time (p_c), s	1.1	4.6		0.6		3.2

Intersection Summary	
HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	670	0	0	1128	460	171	85	317	0	0	0
Future Volume (veh/h)	240	670	0	0	1128	460	171	85	317	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	261	728	0	0	1226	466	139	158	284			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	299	2643	0	0	1881	713	216	227	385			
Arrive On Green	0.17	0.75	0.00	0.00	1.00	1.00	0.12	0.12	0.12			
Sat Flow, veh/h	1767	3618	0	0	3758	1360	1767	1856	3145			
Grp Volume(v), veh/h	261	728	0	0	1153	539	139	158	284			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1689	1573	1767	1856	1572			
Q Serve(g_s), s	13.0	5.9	0.0	0.0	0.0	0.0	6.7	7.4	7.8			
Cycle Q Clear(g_c), s	13.0	5.9	0.0	0.0	0.0	0.0	6.7	7.4	7.8			
Prop In Lane	1.00		0.00	0.00		0.86	1.00		1.00			
Lane Grp Cap(c), veh/h	299	2643	0	0	1770	824	216	227	385			
V/C Ratio(X)	0.87	0.28	0.00	0.00	0.65	0.65	0.64	0.70	0.74			
Avail Cap(c_a), veh/h	530	2643	0	0	1770	824	412	433	734			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.72	0.72	0.00	0.00	0.90	0.90	1.00	1.00	1.00			
Uniform Delay (d), s/veh	36.4	3.6	0.0	0.0	0.0	0.0	37.6	37.9	38.1			
Incr Delay (d2), s/veh	2.3	0.2	0.0	0.0	1.7	3.6	1.2	1.4	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.5	1.4	0.0	0.0	0.4	0.8	2.9	3.4	3.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.8	3.7	0.0	0.0	1.7	3.6	38.8	39.3	39.1			
LnGrp LOS	D	A	A	A	A	A	D	D	D			
Approach Vol, veh/h		989			1692			581				
Approach Delay, s/veh		13.0			2.3			39.1				
Approach LOS		B			A			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		73.9			20.3	53.6		16.1				
Change Period (Y+Rc), s		6.4			5.1	6.4		5.1				
Max Green Setting (Gmax), s		57.5			27.0	25.4		21.0				
Max Q Clear Time (g_c+I1), s		7.9			15.0	2.0		9.8				
Green Ext Time (p_c), s		3.3			0.3	8.8		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1015	20	40	1378	31	50	10	30	130	10	120
Future Volume (veh/h)	30	1015	20	40	1378	31	50	10	30	130	10	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	33	1103	21	43	1466	31	54	11	30	135	10	115
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	44	1364	26	530	3473	73	187	69	188	263	20	230
Arrive On Green	0.05	0.77	0.77	0.30	0.68	0.68	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1767	3536	67	1767	5102	108	1251	438	1194	1348	127	1457
Grp Volume(v), veh/h	33	550	574	43	970	527	54	0	41	135	0	125
Grp Sat Flow(s),veh/h/ln	1767	1763	1841	1767	1689	1833	1251	0	1632	1348	0	1583
Q Serve(g_s), s	1.7	17.1	17.1	1.6	11.6	11.6	3.7	0.0	2.0	8.7	0.0	6.5
Cycle Q Clear(g_c), s	1.7	17.1	17.1	1.6	11.6	11.6	10.2	0.0	2.0	10.6	0.0	6.5
Prop In Lane	1.00		0.04	1.00		0.06	1.00		0.73	1.00		0.92
Lane Grp Cap(c), veh/h	44	680	710	530	2299	1248	187	0	257	263	0	250
V/C Ratio(X)	0.75	0.81	0.81	0.08	0.42	0.42	0.29	0.00	0.16	0.51	0.00	0.50
Avail Cap(c_a), veh/h	285	680	710	530	2299	1248	358	0	481	448	0	466
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.94	0.64	0.64	0.64	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.5	8.3	8.3	22.6	6.4	6.4	39.3	0.0	32.8	37.3	0.0	34.7
Incr Delay (d2), s/veh	8.5	9.5	9.1	0.0	0.4	0.7	0.3	0.0	0.1	0.6	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	4.6	4.7	0.6	3.3	3.7	1.2	0.0	0.8	2.9	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.0	17.8	17.4	22.6	6.8	7.1	39.7	0.0	32.9	37.9	0.0	35.2
LnGrp LOS	D	B	B	C	A	A	D	A	C	D	A	D
Approach Vol, veh/h		1157			1540			95			260	
Approach Delay, s/veh		18.5			7.3			36.7			36.6	
Approach LOS		B			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.3	40.0		17.7	5.7	66.6		17.7				
Change Period (Y+Rc), s	5.3	* 5.3		3.5	3.5	5.3		3.5				
Max Green Setting (Gmax), s	16.5	* 35		26.5	14.5	36.7		26.5				
Max Q Clear Time (g_c+I1), s	13.6	19.1		12.6	3.7	13.6		12.2				
Green Ext Time (p_c), s	0.0	7.4		0.6	0.0	12.5		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



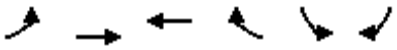
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	1087	310	293	1207	60	121	70	112	100	252	60
Future Volume (veh/h)	100	1087	310	293	1207	60	121	70	112	100	252	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	109	1182	317	318	1312	62	132	76	110	109	274	61
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	126	1247	329	336	1964	93	150	133	192	127	265	59
Arrive On Green	0.07	0.45	0.45	0.19	0.57	0.57	0.08	0.19	0.19	0.07	0.18	0.18
Sat Flow, veh/h	1767	2742	724	1767	3423	161	1767	685	991	1767	1465	326
Grp Volume(v), veh/h	109	753	746	318	675	699	132	0	186	109	0	335
Grp Sat Flow(s),veh/h/ln	1767	1763	1703	1767	1763	1822	1767	0	1675	1767	0	1791
Q Serve(g_s), s	11.8	78.7	82.1	34.4	51.1	51.4	14.3	0.0	19.5	11.8	0.0	35.0
Cycle Q Clear(g_c), s	11.8	78.7	82.1	34.4	51.1	51.4	14.3	0.0	19.5	11.8	0.0	35.0
Prop In Lane	1.00		0.43	1.00		0.09	1.00		0.59	1.00		0.18
Lane Grp Cap(c), veh/h	126	802	775	336	1011	1045	150	0	325	127	0	324
V/C Ratio(X)	0.86	0.94	0.96	0.95	0.67	0.67	0.88	0.00	0.57	0.86	0.00	1.03
Avail Cap(c_a), veh/h	183	820	793	548	1185	1225	320	0	384	228	0	324
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	88.8	50.2	51.1	77.3	28.5	28.5	87.5	0.0	70.6	88.8	0.0	79.2
Incr Delay (d2), s/veh	17.9	18.1	22.9	13.6	1.0	1.0	6.3	0.0	0.6	6.4	0.0	58.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	38.2	39.4	16.8	21.7	22.5	6.8	0.0	8.5	5.7	0.0	21.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	106.8	68.2	74.0	91.0	29.4	29.5	93.8	0.0	71.2	95.2	0.0	138.1
LnGrp LOS	F	E	E	F	C	C	F	A	E	F	A	F
Approach Vol, veh/h		1608			1692			318			444	
Approach Delay, s/veh		73.5			41.0			80.6			127.5	
Approach LOS		E			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	93.3	19.9	39.9	17.3	116.2	17.4	42.5
Change Period (Y+Rc), s	3.5	5.3	3.5	* 4.9	3.5	5.3	3.5	4.9
Max Green Setting (Gmax), s	6.8	90.0	35.0	* 35	20.0	130.0	25.0	44.3
Max Q Clear Time (g_c+I1), s	16.4	84.1	16.3	37.0	13.8	53.4	13.8	21.5
Green Ext Time (p_c), s	0.4	3.9	0.1	0.0	0.1	9.6	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	66.4
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	1207	1479	20	30	20
Future Volume (veh/h)	20	1207	1479	20	30	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	21	1271	1573	20	33	20
Peak Hour Factor	0.95	0.95	0.94	0.94	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	32	3066	2896	37	58	51
Arrive On Green	0.02	0.87	1.00	1.00	0.03	0.03
Sat Flow, veh/h	1767	3618	3656	45	1767	1572
Grp Volume(v), veh/h	21	1271	777	816	33	20
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1846	1767	1572
Q Serve(g_s), s	1.1	6.6	0.0	0.0	1.7	1.1
Cycle Q Clear(g_c), s	1.1	6.6	0.0	0.0	1.7	1.1
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	32	3066	1432	1500	58	51
V/C Ratio(X)	0.65	0.41	0.54	0.54	0.57	0.39
Avail Cap(c_a), veh/h	285	3066	1432	1500	560	498
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.11	0.11	0.38	0.38	1.00	1.00
Uniform Delay (d), s/veh	43.9	1.2	0.0	0.0	42.9	42.7
Incr Delay (d2), s/veh	0.9	0.0	0.6	0.5	3.3	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.2	0.2	0.8	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.8	1.2	0.6	0.5	46.2	44.4
LnGrp LOS	D	A	A	A	D	D
Approach Vol, veh/h		1292	1593		53	
Approach Delay, s/veh		2.0	0.6		45.5	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		83.6		6.4	5.1	78.4
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		52.7		28.5	14.5	34.7
Max Q Clear Time (g_c+I1), s		8.6		3.7	3.1	2.0
Green Ext Time (p_c), s		12.0		0.1	0.0	17.3

Intersection Summary	
HCM 6th Ctrl Delay	2.0
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	921	164	391	1187	119	148	62	170	118	118	108
Future Volume (veh/h)	70	921	164	391	1187	119	148	62	170	118	118	108
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	1001	156	425	1290	118	161	67	163	128	128	106
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	79	1384	215	226	1755	160	128	255	211	110	237	199
Arrive On Green	0.09	0.91	0.91	0.13	0.54	0.54	0.07	0.14	0.14	0.06	0.13	0.13
Sat Flow, veh/h	1767	3045	474	1767	3262	297	1767	1856	1535	1767	1856	1558
Grp Volume(v), veh/h	76	579	578	425	695	713	161	67	163	128	128	106
Grp Sat Flow(s),veh/h/ln	1767	1763	1756	1767	1763	1797	1767	1856	1535	1767	1856	1558
Q Serve(g_s), s	3.9	7.8	7.9	11.5	27.1	27.4	6.5	2.9	9.2	5.6	5.8	5.7
Cycle Q Clear(g_c), s	3.9	7.8	7.9	11.5	27.1	27.4	6.5	2.9	9.2	5.6	5.8	5.7
Prop In Lane	1.00		0.27	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	79	801	798	226	948	967	128	255	211	110	237	199
V/C Ratio(X)	0.97	0.72	0.72	1.88	0.73	0.74	1.26	0.26	0.77	1.16	0.54	0.53
Avail Cap(c_a), veh/h	79	801	798	226	948	967	128	575	476	110	557	467
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	0.43	0.43	0.43	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	2.6	2.6	39.3	15.9	15.9	41.8	34.7	37.4	42.2	36.8	36.8
Incr Delay (d2), s/veh	85.4	5.1	5.2	404.1	2.2	2.2	165.9	0.2	2.3	136.6	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	2.2	2.2	30.1	9.7	10.0	8.6	1.3	3.5	6.6	2.6	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	126.4	7.7	7.7	443.4	18.1	18.1	207.7	34.9	39.7	178.8	37.5	37.6
LnGrp LOS	F	A	A	F	B	B	F	C	D	F	D	D
Approach Vol, veh/h		1233			1833			391			362	
Approach Delay, s/veh		15.0			116.7			108.0			87.5	
Approach LOS		B			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	47.6	11.0	16.4	7.5	55.1	10.1	17.3
Change Period (Y+Rc), s	3.5	6.7	4.5	4.9	3.5	6.7	4.5	4.9
Max Green Setting (Gmax), s	11.5	25.4	6.5	27.0	4.0	32.9	5.6	27.9
Max Q Clear Time (g_c+I1), s	13.5	9.9	8.5	7.8	5.9	29.4	7.6	11.2
Green Ext Time (p_c), s	0.0	9.6	0.0	0.5	0.0	2.7	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	80.2
HCM 6th LOS	F



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	727	280	200	1226	90	210	90	50	40	380	331
Future Volume (veh/h)	172	727	280	200	1226	90	210	90	50	40	380	331
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	187	790	282	217	1333	97	228	98	51	43	413	326
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	244	1111	396	573	1832	133	279	520	253	80	318	249
Arrive On Green	0.07	0.44	0.44	0.11	0.37	0.37	0.08	0.23	0.23	0.02	0.17	0.17
Sat Flow, veh/h	3428	2536	905	3428	3333	242	3428	2287	1112	3428	1879	1471
Grp Volume(v), veh/h	187	549	523	217	703	727	228	74	75	43	387	352
Grp Sat Flow(s),veh/h/ln	1714	1763	1678	1714	1763	1812	1714	1763	1636	1714	1763	1588
Q Serve(g_s), s	7.5	35.6	35.6	8.2	48.2	48.5	9.2	4.7	5.2	1.7	23.7	23.7
Cycle Q Clear(g_c), s	7.5	35.6	35.6	8.2	48.2	48.5	9.2	4.7	5.2	1.7	23.7	23.7
Prop In Lane	1.00		0.54	1.00		0.13	1.00		0.68	1.00		0.93
Lane Grp Cap(c), veh/h	244	772	735	573	969	996	279	401	372	80	298	269
V/C Ratio(X)	0.77	0.71	0.71	0.38	0.73	0.73	0.82	0.18	0.20	0.54	1.30	1.31
Avail Cap(c_a), veh/h	575	772	735	573	969	996	453	401	372	453	298	269
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.9	32.1	32.1	55.4	35.1	35.2	63.3	43.6	43.8	67.6	58.1	58.2
Incr Delay (d2), s/veh	0.5	0.5	0.5	0.3	3.8	3.8	2.4	0.1	0.1	2.1	156.5	163.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	14.7	14.0	3.6	22.3	23.1	4.1	2.1	2.1	0.8	23.4	21.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.3	32.6	32.7	55.7	39.0	39.0	65.7	43.7	43.9	69.8	214.7	221.3
LnGrp LOS	E	C	C	E	D	D	E	D	D	E	F	F
Approach Vol, veh/h		1259			1647			377			782	
Approach Delay, s/veh		37.4			41.2			57.0			209.7	
Approach LOS		D			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	67.0	14.9	29.0	13.5	82.6	6.7	37.1
Change Period (Y+Rc), s	5.7	* 5.7	3.5	5.3	3.5	5.7	3.5	5.3
Max Green Setting (Gmax), s	3.5	* 61	18.5	23.7	23.5	56.3	18.5	23.7
Max Q Clear Time (g_c+I1), s	10.2	37.6	11.2	25.7	9.5	50.5	3.7	7.2
Green Ext Time (p_c), s	0.4	7.0	0.2	0.0	0.5	3.9	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	73.9
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	695	152	280	1176	265	95	55	155	100	70	100
Future Volume (veh/h)	70	695	152	280	1176	265	95	55	155	100	70	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	76	755	152	304	1278	262	76	85	143	92	99	93
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	119	1453	814	894	2295	1141	196	206	173	147	155	127
Arrive On Green	0.05	0.55	0.55	0.09	0.21	0.21	0.11	0.11	0.11	0.08	0.08	0.08
Sat Flow, veh/h	3428	3526	1551	3428	3526	1552	1767	1856	1555	1767	1856	1527
Grp Volume(v), veh/h	76	755	152	304	1278	262	76	85	143	92	99	93
Grp Sat Flow(s),veh/h/ln	1714	1763	1551	1714	1763	1552	1767	1856	1555	1767	1856	1527
Q Serve(g_s), s	3.1	18.9	5.8	11.7	45.3	15.0	5.6	6.0	12.6	7.0	7.2	8.3
Cycle Q Clear(g_c), s	3.1	18.9	5.8	11.7	45.3	15.0	5.6	6.0	12.6	7.0	7.2	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	119	1453	814	894	2295	1141	196	206	173	147	155	127
V/C Ratio(X)	0.64	0.52	0.19	0.34	0.56	0.23	0.39	0.41	0.83	0.62	0.64	0.73
Avail Cap(c_a), veh/h	478	1453	814	894	2295	1141	278	292	244	278	292	240
HCM Platoon Ratio	1.33	1.33	1.33	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.63	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.9	22.9	13.3	52.6	37.0	15.6	57.8	58.0	60.9	62.0	62.1	62.6
Incr Delay (d2), s/veh	1.3	0.8	0.3	0.0	0.1	0.0	0.5	0.5	10.5	1.6	1.6	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	6.9	2.5	5.3	21.3	8.2	2.5	2.8	5.5	3.2	3.5	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.2	23.7	13.6	52.7	37.0	15.6	58.3	58.5	71.4	63.7	63.8	65.6
LnGrp LOS	E	C	B	D	D	B	E	E	E	E	E	E
Approach Vol, veh/h		983			1844			304			284	
Approach Delay, s/veh		25.5			36.6			64.5			64.3	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.8	63.0		15.7	8.4	96.4		19.5
Change Period (Y+Rc), s	5.3	* 5.3		4.0	3.5	5.3		4.0
Max Green Setting (Gmax), s	21.5	* 58		22.0	19.5	59.7		22.0
Max Q Clear Time (g_c+I1), s	13.7	20.9		10.3	5.1	47.3		14.6
Green Ext Time (p_c), s	0.4	12.4		0.5	0.1	10.1		0.4

Intersection Summary	
HCM 6th Ctrl Delay	38.2
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	660	193	1164	1393	160	159	677	513	191	1326	144
Future Volume (veh/h)	132	660	193	1164	1393	160	159	677	513	191	1326	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	142	710	186	1265	1514	163	173	736	468	203	1411	139
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	607	1692	516	451	1274	137	245	1536	675	257	1757	173
Arrive On Green	0.06	0.11	0.11	0.13	0.28	0.28	0.07	0.30	0.30	0.07	0.30	0.30
Sat Flow, veh/h	3428	5066	1546	3428	4634	498	3428	5066	1544	3428	5950	585
Grp Volume(v), veh/h	142	710	186	1265	1103	574	173	736	468	203	1135	415
Grp Sat Flow(s),veh/h/ln	1714	1689	1546	1714	1689	1755	1714	1689	1544	1714	1596	1748
Q Serve(g_s), s	5.5	18.3	11.8	18.4	38.5	38.5	6.9	16.6	34.4	8.2	30.6	30.7
Cycle Q Clear(g_c), s	5.5	18.3	11.8	18.4	38.5	38.5	6.9	16.6	34.4	8.2	30.6	30.7
Prop In Lane	1.00		1.00	1.00		0.28	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	607	1692	516	451	929	483	245	1536	675	257	1414	516
V/C Ratio(X)	0.23	0.42	0.36	2.81	1.19	1.19	0.71	0.48	0.69	0.79	0.80	0.80
Avail Cap(c_a), veh/h	607	1692	516	451	929	483	316	1536	675	1014	1566	572
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	49.6	27.7	60.8	50.8	50.8	63.6	39.8	32.1	63.7	45.6	45.6
Incr Delay (d2), s/veh	0.1	0.7	1.8	819.5	95.4	104.3	5.6	0.3	3.2	2.1	3.0	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	8.4	4.9	59.1	27.9	30.2	3.2	6.8	12.8	3.6	12.2	14.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.9	50.3	29.5	880.3	146.1	155.0	69.2	40.0	35.3	65.8	48.5	53.4
LnGrp LOS	E	D	C	F	F	F	E	D	D	E	D	D
Approach Vol, veh/h		1038			2942			1377			1753	
Approach Delay, s/veh		47.5			463.5			42.1			51.7	
Approach LOS		D			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.1	48.6	23.0	53.3	16.2	47.5	31.3	45.0
Change Period (Y+Rc), s	4.6	6.2	4.6	6.5	6.2	* 6.2	6.5	* 6.5
Max Green Setting (Gmax), s	11.4	17.8	18.4	40.5	12.9	* 46	20.4	* 39
Max Q Clear Time (g_c+I1), s	10.2	36.4	20.4	20.3	8.9	32.7	7.5	40.5
Green Ext Time (p_c), s	0.3	0.0	0.0	6.0	0.2	8.6	0.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	219.6
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	94	14	237	250	0
Future Vol, veh/h	1	94	14	237	250	0
Conflicting Peds, #/hr	5	0	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1	102	15	258	272	0

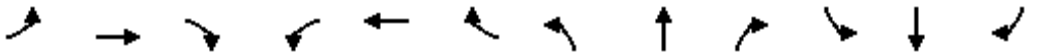
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	575	282	282	0	-	0
Stage 1	282	-	-	-	-	-
Stage 2	293	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	478	755	1275	-	-	-
Stage 1	763	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	463	748	1263	-	-	-
Mov Cap-2 Maneuver	463	-	-	-	-	-
Stage 1	746	-	-	-	-	-
Stage 2	747	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1263	-	743	-	-
HCM Lane V/C Ratio	0.012	-	0.139	-	-
HCM Control Delay (s)	7.9	-	10.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

1: I-5 SB On-Ramp/I-5 SB Off-Ramp & Leucadia Boulevard

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	765	281	506	715	0	0	0	0	380	0	220
Future Volume (veh/h)	0	765	281	506	715	0	0	0	0	380	0	220
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	797	256	538	761	0				388	0	195
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94				0.98	0.98	0.98
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	1125	493	706	2202	0				622	0	277
Arrive On Green	0.00	0.32	0.32	0.21	0.62	0.00				0.18	0.00	0.18
Sat Flow, veh/h	0	3618	1546	3428	3618	0				3534	0	1572
Grp Volume(v), veh/h	0	797	256	538	761	0				388	0	195
Grp Sat Flow(s),veh/h/ln	0	1763	1546	1714	1763	0				1767	0	1572
Q Serve(g_s), s	0.0	10.2	6.9	7.6	5.3	0.0				5.2	0.0	6.0
Cycle Q Clear(g_c), s	0.0	10.2	6.9	7.6	5.3	0.0				5.2	0.0	6.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1125	493	706	2202	0				622	0	277
V/C Ratio(X)	0.00	0.71	0.52	0.76	0.35	0.00				0.62	0.00	0.70
Avail Cap(c_a), veh/h	0	2066	906	1674	4138	0				1726	0	768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	15.3	14.2	19.1	4.6	0.0				19.5	0.0	19.8
Incr Delay (d2), s/veh	0.0	0.3	0.3	0.6	0.0	0.0				0.4	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.5	2.1	2.7	1.2	0.0				2.0	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.6	14.5	19.8	4.6	0.0				19.9	0.0	21.1
LnGrp LOS	A	B	B	B	A	A				B	A	C
Approach Vol, veh/h		1053			1299						583	
Approach Delay, s/veh		15.4			10.9						20.3	
Approach LOS		B			B						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	15.6	21.4		14.1		37.1
Change Period (Y+Rc), s	5.1	5.1		5.1		5.1
Max Green Setting (Gmax), s	25.0	30.0		25.0		60.1
Max Q Clear Time (g_c+I1), s	9.6	12.2		8.0		7.3
Green Ext Time (p_c), s	1.0	4.2		1.0		4.0

Intersection Summary		
HCM 6th Ctrl Delay		14.4
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	895	0	0	1016	595	205	90	734	0	0	0
Future Volume (veh/h)	250	895	0	0	1016	595	205	90	734	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	272	973	0	0	1058	579	160	185	700			
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	309	2185	0	0	1312	591	446	468	794			
Arrive On Green	0.17	0.62	0.00	0.00	0.39	0.39	0.25	0.25	0.25			
Sat Flow, veh/h	1767	3618	0	0	3544	1521	1767	1856	3145			
Grp Volume(v), veh/h	272	973	0	0	1058	579	160	185	700			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1689	1521	1767	1856	1572			
Q Serve(g_s), s	13.5	13.0	0.0	0.0	25.1	33.8	6.7	7.5	19.3			
Cycle Q Clear(g_c), s	13.5	13.0	0.0	0.0	25.1	33.8	6.7	7.5	19.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	309	2185	0	0	1312	591	446	468	794			
V/C Ratio(X)	0.88	0.45	0.00	0.00	0.81	0.98	0.36	0.40	0.88			
Avail Cap(c_a), veh/h	432	2185	0	0	1312	591	511	536	909			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.68	0.68	0.00	0.00	0.89	0.89	1.00	1.00	1.00			
Uniform Delay (d), s/veh	36.2	9.0	0.0	0.0	24.5	27.2	27.7	27.9	32.4			
Incr Delay (d2), s/veh	8.1	0.4	0.0	0.0	4.8	30.4	0.2	0.2	8.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	6.4	4.6	0.0	0.0	10.1	16.2	2.8	3.3	8.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.3	9.4	0.0	0.0	29.3	57.5	27.8	28.1	40.8			
LnGrp LOS	D	A	A	A	C	E	C	C	D			
Approach Vol, veh/h		1245			1637			1045				
Approach Delay, s/veh		17.1			39.3			36.6				
Approach LOS		B			D			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		62.2			20.8	41.4		27.8				
Change Period (Y+Rc), s		6.4			5.1	6.4		5.1				
Max Green Setting (Gmax), s		52.5			22.0	25.4		26.0				
Max Q Clear Time (g_c+I1), s		15.0			15.5	35.8		21.3				
Green Ext Time (p_c), s		5.5			0.2	0.0		1.5				

Intersection Summary	
HCM 6th Ctrl Delay	31.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	1576	30	70	1523	40	30	10	20	71	10	60
Future Volume (veh/h)	40	1576	30	70	1523	40	30	10	20	71	10	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	41	1608	29	74	1620	40	33	11	20	77	11	60
Peak Hour Factor	0.98	0.98	0.98	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	53	1673	30	553	3917	97	132	56	103	168	24	130
Arrive On Green	0.03	0.47	0.47	0.63	1.00	1.00	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1767	3541	64	1767	5081	125	1316	583	1060	1364	246	1341
Grp Volume(v), veh/h	41	799	838	74	1077	583	33	0	31	77	0	71
Grp Sat Flow(s),veh/h/ln	1767	1763	1842	1767	1689	1829	1316	0	1643	1364	0	1586
Q Serve(g_s), s	2.8	52.5	52.8	2.0	0.0	0.0	2.9	0.0	2.1	6.6	0.0	5.1
Cycle Q Clear(g_c), s	2.8	52.5	52.8	2.0	0.0	0.0	8.0	0.0	2.1	8.7	0.0	5.1
Prop In Lane	1.00		0.03	1.00		0.07	1.00		0.65	1.00		0.85
Lane Grp Cap(c), veh/h	53	833	870	553	2603	1410	132	0	159	168	0	154
V/C Ratio(X)	0.78	0.96	0.96	0.13	0.41	0.41	0.25	0.00	0.19	0.46	0.00	0.46
Avail Cap(c_a), veh/h	272	833	870	553	2603	1410	328	0	404	372	0	390
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.71	0.71	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.8	30.5	30.6	15.8	0.0	0.0	55.0	0.0	49.9	53.9	0.0	51.2
Incr Delay (d2), s/veh	6.5	18.2	18.2	0.0	0.0	0.1	0.4	0.0	0.2	0.7	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	25.0	26.3	0.8	0.0	0.0	1.0	0.0	0.9	2.3	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.3	48.7	48.8	15.8	0.0	0.1	55.4	0.0	50.1	54.6	0.0	52.0
LnGrp LOS	E	D	D	B	A	A	E	A	D	D	A	D
Approach Vol, veh/h		1678			1734			64			148	
Approach Delay, s/veh		49.2			0.7			52.8			53.4	
Approach LOS		D			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.9	62.0		15.1	7.1	97.8		15.1				
Change Period (Y+Rc), s	5.3	* 5.3		3.5	3.5	5.3		3.5				
Max Green Setting (Gmax), s	21.5	* 57		29.5	18.5	59.7		29.5				
Max Q Clear Time (g_c+I1), s	4.0	54.8		10.7	4.8	2.0		10.0				
Green Ext Time (p_c), s	0.1	1.6		0.3	0.0	21.8		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	26.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



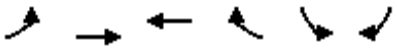
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1452	260	203	1206	70	214	162	267	60	151	50
Future Volume (veh/h)	90	1452	260	203	1206	70	214	162	267	60	151	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	94	1512	261	221	1311	73	233	176	269	65	164	51
Peak Hour Factor	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	376	1256	213	251	1122	62	264	166	254	84	194	60
Arrive On Green	0.28	0.55	0.55	0.05	0.11	0.11	0.15	0.25	0.25	0.05	0.14	0.14
Sat Flow, veh/h	1767	3015	510	1767	3390	188	1767	661	1011	1767	1357	422
Grp Volume(v), veh/h	94	871	902	221	680	704	233	0	445	65	0	215
Grp Sat Flow(s),veh/h/ln	1767	1763	1762	1767	1763	1816	1767	0	1672	1767	0	1779
Q Serve(g_s), s	4.9	50.0	50.0	14.9	39.7	39.7	15.5	0.0	30.1	4.4	0.0	14.1
Cycle Q Clear(g_c), s	4.9	50.0	50.0	14.9	39.7	39.7	15.5	0.0	30.1	4.4	0.0	14.1
Prop In Lane	1.00		0.29	1.00		0.10	1.00		0.60	1.00		0.24
Lane Grp Cap(c), veh/h	376	735	734	251	583	601	264	0	419	84	0	254
V/C Ratio(X)	0.25	1.19	1.23	0.88	1.17	1.17	0.88	0.00	1.06	0.78	0.00	0.85
Avail Cap(c_a), veh/h	376	735	734	302	583	601	264	0	419	243	0	456
HCM Platoon Ratio	1.33	1.33	1.33	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.63	0.88	0.88	0.88	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.6	26.7	26.7	56.2	53.4	53.4	50.0	0.0	45.0	56.5	0.0	50.1
Incr Delay (d2), s/veh	0.1	92.6	110.2	17.9	90.7	92.1	26.7	0.0	61.0	5.7	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	36.0	39.6	8.3	33.4	34.6	8.7	0.0	19.3	2.1	0.0	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.7	119.3	137.0	74.1	144.2	145.6	76.7	0.0	106.0	62.3	0.0	53.1
LnGrp LOS	D	F	F	E	F	F	E	A	F	E	A	D
Approach Vol, veh/h		1867			1605			678			280	
Approach Delay, s/veh		123.6			135.1			95.9			55.3	
Approach LOS		F			F			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.5	55.3	22.8	21.3	30.8	45.0	9.2	35.0
Change Period (Y+Rc), s	3.5	5.3	* 4.9	* 4.2	5.3	* 5.3	3.5	4.9
Max Green Setting (Gmax), s	20.5	35.7	* 17	* 31	16.5	* 40	16.5	30.1
Max Q Clear Time (g_c+I1), s	16.9	52.0	17.5	16.1	6.9	41.7	6.4	32.1
Green Ext Time (p_c), s	0.1	0.0	0.0	0.7	0.1	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	119.2
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	2051	1278	20	20	20
Future Volume (veh/h)	50	2051	1278	20	20	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	52	2136	1331	19	22	18
Peak Hour Factor	0.96	0.96	0.96	0.96	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	67	3180	2971	42	43	39
Arrive On Green	0.08	1.00	1.00	1.00	0.02	0.02
Sat Flow, veh/h	1767	3618	3650	51	1767	1572
Grp Volume(v), veh/h	52	2136	659	691	22	18
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1845	1767	1572
Q Serve(g_s), s	3.5	0.0	0.0	0.0	1.5	1.4
Cycle Q Clear(g_c), s	3.5	0.0	0.0	0.0	1.5	1.4
Prop In Lane	1.00			0.03	1.00	1.00
Lane Grp Cap(c), veh/h	67	3180	1472	1541	43	39
V/C Ratio(X)	0.78	0.67	0.45	0.45	0.51	0.47
Avail Cap(c_a), veh/h	361	3180	1472	1541	538	478
HCM Platoon Ratio	2.00	2.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.53	0.53	1.00	1.00
Uniform Delay (d), s/veh	55.0	0.0	0.0	0.0	57.8	57.8
Incr Delay (d2), s/veh	0.7	0.1	0.5	0.5	3.4	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.2	0.2	0.7	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	55.6	0.1	0.5	0.5	61.2	61.0
LnGrp LOS	E	A	A	A	E	E
Approach Vol, veh/h		2188	1350		40	
Approach Delay, s/veh		1.4	0.5		61.1	
Approach LOS		A	A		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		113.6		6.4	8.0	105.5
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		74.7		36.5	24.5	46.7
Max Q Clear Time (g_c+I1), s		2.0		3.5	5.5	2.0
Green Ext Time (p_c), s		36.9		0.0	0.0	15.0

Intersection Summary	
HCM 6th Ctrl Delay	1.7
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	1735	143	239	1091	136	132	94	332	90	82	82
Future Volume (veh/h)	129	1735	143	239	1091	136	132	94	332	90	82	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	136	1826	130	260	1186	137	143	102	296	98	89	81
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	158	1487	105	363	1869	215	110	190	159	102	181	151
Arrive On Green	0.09	0.45	0.45	0.21	0.59	0.59	0.06	0.10	0.10	0.06	0.10	0.10
Sat Flow, veh/h	1767	3341	235	1767	3180	366	1767	1856	1549	1767	1856	1548
Grp Volume(v), veh/h	136	953	1003	260	656	667	143	102	296	98	89	81
Grp Sat Flow(s),veh/h/ln	1767	1763	1813	1767	1763	1784	1767	1856	1549	1767	1856	1548
Q Serve(g_s), s	9.1	53.4	53.4	16.5	29.3	29.6	7.5	6.3	8.1	6.6	5.5	6.0
Cycle Q Clear(g_c), s	9.1	53.4	53.4	16.5	29.3	29.6	7.5	6.3	8.1	6.6	5.5	6.0
Prop In Lane	1.00		0.13	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	784	807	363	1036	1048	110	190	159	102	181	151
V/C Ratio(X)	0.86	1.21	1.24	0.72	0.63	0.64	1.29	0.54	1.87	0.96	0.49	0.54
Avail Cap(c_a), veh/h	158	784	807	363	1036	1048	110	427	356	102	417	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.68	0.40	0.40	0.40	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	33.3	33.3	44.4	16.2	16.3	56.3	51.2	23.7	56.4	51.4	51.6
Incr Delay (d2), s/veh	25.8	104.8	116.8	2.4	1.2	1.2	184.2	0.9	406.3	77.6	0.8	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	44.2	48.2	7.2	11.0	11.2	9.0	2.9	20.8	5.1	2.6	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.7	138.1	150.1	46.8	17.4	17.5	240.4	52.0	430.0	134.0	52.1	52.7
LnGrp LOS	E	F	F	D	B	B	F	D	F	F	D	D
Approach Vol, veh/h		2092			1583			541			268	
Approach Delay, s/veh		140.0			22.3			308.7			82.2	
Approach LOS		F			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	60.1	12.0	16.6	14.2	77.2	11.4	17.2
Change Period (Y+Rc), s	6.7	* 6.7	4.5	4.9	3.5	6.7	4.5	4.9
Max Green Setting (Gmax), s	12.5	* 53	7.5	27.0	10.7	55.2	6.9	27.6
Max Q Clear Time (g_c+I1), s	10.5	55.4	9.5	8.0	11.1	31.6	8.6	10.1
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.0	11.0	0.0	0.8

Intersection Summary		
HCM 6th Ctrl Delay		115.4
HCM 6th LOS		F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	410	1407	370	150	1131	220	310	140	80	110	120	345
Future Volume (veh/h)	410	1407	370	150	1131	220	310	140	80	110	120	345
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	446	1529	378	156	1178	217	337	152	82	120	130	350
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	495	914	217	901	1362	249	392	495	254	170	273	243
Arrive On Green	0.14	0.32	0.32	0.53	0.92	0.92	0.11	0.22	0.22	0.05	0.16	0.16
Sat Flow, veh/h	3428	2824	671	3428	2974	545	3428	2254	1154	3428	1763	1569
Grp Volume(v), veh/h	446	932	975	156	695	700	337	117	117	120	130	350
Grp Sat Flow(s),veh/h/ln	1714	1763	1732	1714	1763	1756	1714	1763	1646	1714	1763	1569
Q Serve(g_s), s	17.9	45.3	45.3	3.3	22.1	23.2	13.5	7.8	8.4	4.8	9.4	21.7
Cycle Q Clear(g_c), s	17.9	45.3	45.3	3.3	22.1	23.2	13.5	7.8	8.4	4.8	9.4	21.7
Prop In Lane	1.00		0.39	1.00		0.31	1.00		0.70	1.00		1.00
Lane Grp Cap(c), veh/h	495	570	561	901	807	804	392	387	362	170	273	243
V/C Ratio(X)	0.90	1.63	1.74	0.17	0.86	0.87	0.86	0.30	0.32	0.71	0.48	1.44
Avail Cap(c_a), veh/h	526	570	561	901	807	804	649	387	362	796	273	243
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.9	47.3	47.4	25.3	4.1	4.2	60.9	45.7	45.9	65.5	54.0	59.2
Incr Delay (d2), s/veh	2.2	285.8	333.6	0.1	9.6	10.2	3.1	0.2	0.2	2.0	0.5	219.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	64.5	70.8	1.3	4.2	4.3	6.0	3.4	3.4	2.1	4.2	23.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.1	333.1	380.9	25.3	13.8	14.4	64.0	45.8	46.1	67.5	54.4	278.4
LnGrp LOS	E	F	F	C	B	B	E	D	D	E	D	F
Approach Vol, veh/h		2353			1551			571			600	
Approach Delay, s/veh		301.4			15.2			56.6			187.7	
Approach LOS		F			B			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	51.0	19.5	27.0	23.7	69.8	10.4	36.1
Change Period (Y+Rc), s	5.7	* 5.7	3.5	5.3	3.5	5.7	3.5	5.3
Max Green Setting (Gmax), s	28.5	* 45	26.5	21.7	21.5	52.3	32.5	15.7
Max Q Clear Time (g_c+I1), s	15.3	47.3	15.5	23.7	19.9	25.2	6.8	10.4
Green Ext Time (p_c), s	0.5	0.0	0.5	0.0	0.3	10.6	0.2	0.4

Intersection Summary	
HCM 6th Ctrl Delay	173.0
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	1217	330	340	829	282	382	100	400	204	70	150
Future Volume (veh/h)	160	1217	330	340	829	282	382	100	400	204	70	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	168	1281	303	366	891	272	246	304	355	149	178	143
Peak Hour Factor	0.95	0.95	0.95	0.93	0.93	0.93	0.98	0.98	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	218	874	759	907	1628	902	417	437	368	210	221	185
Arrive On Green	0.08	0.33	0.33	0.53	0.92	0.92	0.24	0.24	0.24	0.12	0.12	0.12
Sat Flow, veh/h	3428	3526	1565	3428	3526	1548	1767	1856	1562	1767	1856	1553
Grp Volume(v), veh/h	168	1281	303	366	891	272	246	304	355	149	178	143
Grp Sat Flow(s),veh/h/ln	1714	1763	1565	1714	1763	1548	1767	1856	1562	1767	1856	1553
Q Serve(g_s), s	6.7	34.7	16.8	9.0	5.5	2.3	17.3	21.0	31.5	11.4	13.1	12.5
Cycle Q Clear(g_c), s	6.7	34.7	16.8	9.0	5.5	2.3	17.3	21.0	31.5	11.4	13.1	12.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	218	874	759	907	1628	902	417	437	368	210	221	185
V/C Ratio(X)	0.77	1.47	0.40	0.40	0.55	0.30	0.59	0.70	0.96	0.71	0.81	0.77
Avail Cap(c_a), veh/h	478	874	759	907	1628	902	417	437	368	303	318	266
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.64	0.64	0.64	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.1	46.9	20.5	26.4	3.1	1.8	47.5	48.9	52.9	59.3	60.1	59.8
Incr Delay (d2), s/veh	0.2	210.3	0.1	0.1	0.9	0.6	1.5	4.0	37.1	1.6	6.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	39.4	8.7	3.2	1.3	0.8	7.8	10.2	16.1	5.2	6.5	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.3	257.2	20.6	26.4	4.0	2.4	49.0	52.9	90.0	61.0	66.1	64.6
LnGrp LOS	E	F	C	C	A	A	D	D	F	E	E	E
Approach Vol, veh/h		1752			1529			905			470	
Approach Delay, s/veh		197.7			9.1			66.4			64.0	
Approach LOS		F			A			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.3	40.0		20.7	12.4	69.9		37.0
Change Period (Y+Rc), s	5.3	* 5.3		4.0	3.5	5.3		4.0
Max Green Setting (Gmax), s	31.5	* 35		24.0	19.5	46.7		33.0
Max Q Clear Time (g_c+I1), s	11.0	36.7		15.1	8.7	7.5		33.5
Green Ext Time (p_c), s	0.6	0.0		0.8	0.2	16.9		0.0

Intersection Summary		
HCM 6th Ctrl Delay		96.7
HCM 6th LOS		F

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	343	1194	254	933	820	201	408	1596	835	250	752	203
Future Volume (veh/h)	343	1194	254	933	820	201	408	1596	835	250	752	203
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	373	1298	244	962	845	193	443	1735	697	272	817	186
Peak Hour Factor	0.92	0.92	0.92	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	419	1140	352	827	1475	335	495	1114	723	454	1134	252
Arrive On Green	0.12	0.22	0.22	0.24	0.36	0.36	0.14	0.22	0.22	0.13	0.22	0.22
Sat Flow, veh/h	3428	5066	1566	3428	4125	936	3428	5066	1564	3428	5258	1167
Grp Volume(v), veh/h	373	1298	244	962	691	347	443	1735	697	272	742	261
Grp Sat Flow(s),veh/h/ln	1714	1689	1566	1714	1689	1684	1714	1689	1564	1714	1596	1638
Q Serve(g_s), s	15.0	31.5	14.1	33.8	23.1	23.4	17.8	30.8	26.5	10.5	20.1	20.8
Cycle Q Clear(g_c), s	15.0	31.5	14.1	33.8	23.1	23.4	17.8	30.8	26.5	10.5	20.1	20.8
Prop In Lane	1.00		1.00	1.00		0.56	1.00		1.00	1.00		0.71
Lane Grp Cap(c), veh/h	419	1140	352	827	1207	602	495	1114	723	454	1033	353
V/C Ratio(X)	0.89	1.14	0.69	1.16	0.57	0.58	0.89	1.56	0.96	0.60	0.72	0.74
Avail Cap(c_a), veh/h	451	1140	352	827	1207	602	536	1114	723	793	1395	477
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.16	0.16	0.16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.5	54.3	24.9	53.1	36.3	36.4	58.8	54.6	36.5	57.2	51.0	51.2
Incr Delay (d2), s/veh	3.5	64.5	1.8	86.6	2.0	4.0	16.9	255.0	24.8	0.5	1.4	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	19.8	5.2	24.0	9.5	9.9	8.7	39.0	11.7	4.5	8.0	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.0	118.7	26.7	139.7	38.3	40.4	75.7	309.6	61.3	57.7	52.3	55.8
LnGrp LOS	E	F	C	F	D	D	E	F	E	E	D	E
Approach Vol, veh/h		1915			2000			2875			1275	
Approach Delay, s/veh		96.3			87.4			213.4			54.2	
Approach LOS		F			F			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.7	37.0	40.3	38.0	25.3	36.4	21.7	56.5
Change Period (Y+Rc), s	6.2	* 6.2	6.5	* 6.5	5.1	6.2	4.6	6.5
Max Green Setting (Gmax), s	32.4	* 31	23.4	* 32	21.9	40.8	18.4	36.5
Max Q Clear Time (g_c+I1), s	12.5	32.8	35.8	33.5	19.8	22.8	17.0	25.4
Green Ext Time (p_c), s	0.4	0.0	0.0	0.0	0.5	7.0	0.1	5.3

Intersection Summary	
HCM 6th Ctrl Delay	129.2
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	34	118	241	220	1
Future Vol, veh/h	0	34	118	241	220	1
Conflicting Peds, #/hr	0	0	4	0	0	4
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	37	128	262	239	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	762	244	244	0	-	0
Stage 1	244	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	371	792	1316	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	596	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	332	789	1311	-	-	-
Mov Cap-2 Maneuver	332	-	-	-	-	-
Stage 1	713	-	-	-	-	-
Stage 2	594	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	2.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1311	-	789	-	-
HCM Lane V/C Ratio	0.098	-	0.047	-	-
HCM Control Delay (s)	8	-	9.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.1	-	-

Appendix M
Peak Hour Intersection Capacity Worksheets
Future Year Base with Project with Off-Site Improvement Recommendations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	1087	310	293	1207	60	121	70	112	100	252	60
Future Volume (veh/h)	100	1087	310	293	1207	60	121	70	112	100	252	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	109	1182	317	318	1312	62	132	76	110	109	274	61
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	127	1261	333	337	1981	93	164	135	195	260	273	61
Arrive On Green	0.07	0.46	0.46	0.19	0.58	0.58	0.07	0.20	0.20	0.06	0.19	0.19
Sat Flow, veh/h	1767	2742	724	1767	3423	161	1767	685	991	1767	1465	326
Grp Volume(v), veh/h	109	753	746	318	675	699	132	0	186	109	0	335
Grp Sat Flow(s),veh/h/ln	1767	1763	1703	1767	1763	1822	1767	0	1675	1767	0	1791
Q Serve(g_s), s	11.4	75.6	78.9	33.3	49.0	49.2	11.2	0.0	18.8	9.3	0.0	35.0
Cycle Q Clear(g_c), s	11.4	75.6	78.9	33.3	49.0	49.2	11.2	0.0	18.8	9.3	0.0	35.0
Prop In Lane	1.00		0.43	1.00		0.09	1.00		0.59	1.00		0.18
Lane Grp Cap(c), veh/h	127	811	783	337	1020	1055	164	0	330	260	0	334
V/C Ratio(X)	0.86	0.93	0.95	0.94	0.66	0.66	0.80	0.00	0.56	0.42	0.00	1.00
Avail Cap(c_a), veh/h	188	846	817	565	1222	1262	368	0	396	389	0	334
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	86.1	47.8	48.6	74.9	26.9	27.0	58.8	0.0	68.0	57.5	0.0	76.3
Incr Delay (d2), s/veh	15.7	15.8	20.1	12.0	0.8	0.8	3.5	0.0	0.6	0.4	0.0	49.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	36.2	37.2	16.2	20.6	21.4	5.2	0.0	8.2	4.2	0.0	20.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.8	63.6	68.7	86.9	27.8	27.8	62.3	0.0	68.6	57.9	0.0	126.2
LnGrp LOS	F	E	E	F	C	C	E	A	E	E	A	F
Approach Vol, veh/h		1608			1692			318			444	
Approach Delay, s/veh		68.6			38.9			66.0			109.4	
Approach LOS		E			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	39.2	91.6	16.8	39.9	17.0	113.9	14.8	41.9
Change Period (Y+Rc), s	3.5	5.3	3.5	* 4.9	3.5	5.3	3.5	4.9
Max Green Setting (Gmax), s	60.0	90.0	35.0	* 35	20.0	130.0	25.0	44.3
Max Q Clear Time (g_c+I1), s	35.3	80.9	13.2	37.0	13.4	51.2	11.3	20.8
Green Ext Time (p_c), s	0.4	5.4	0.2	0.0	0.1	9.6	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	60.5
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	727	280	200	1226	90	210	90	50	40	380	331
Future Volume (veh/h)	172	727	280	200	1226	90	210	90	50	40	380	331
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	187	790	282	217	1333	97	228	98	51	43	413	326
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	235	1096	391	370	1624	118	275	669	326	80	443	347
Arrive On Green	0.07	0.43	0.43	0.11	0.49	0.49	0.08	0.29	0.29	0.02	0.24	0.24
Sat Flow, veh/h	3428	2536	905	3428	3333	242	3428	2287	1113	3428	1879	1472
Grp Volume(v), veh/h	187	549	523	217	703	727	228	74	75	43	387	352
Grp Sat Flow(s),veh/h/ln	1714	1763	1678	1714	1763	1812	1714	1763	1637	1714	1763	1588
Q Serve(g_s), s	7.5	35.9	36.0	8.4	47.7	48.1	9.2	4.3	4.8	1.7	30.1	30.5
Cycle Q Clear(g_c), s	7.5	35.9	36.0	8.4	47.7	48.1	9.2	4.3	4.8	1.7	30.1	30.5
Prop In Lane	1.00		0.54	1.00		0.13	1.00		0.68	1.00		0.93
Lane Grp Cap(c), veh/h	235	762	725	370	859	883	275	516	479	80	415	374
V/C Ratio(X)	0.80	0.72	0.72	0.59	0.82	0.82	0.83	0.14	0.16	0.54	0.93	0.94
Avail Cap(c_a), veh/h	262	762	725	370	859	883	311	520	483	130	427	385
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.2	32.8	32.8	59.5	30.6	30.7	63.4	36.6	36.7	67.6	52.4	52.6
Incr Delay (d2), s/veh	1.5	0.5	0.6	1.9	7.0	7.0	13.7	0.0	0.1	2.1	26.6	30.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	14.9	14.2	3.7	20.8	21.6	4.5	1.9	1.9	0.8	16.2	15.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.7	33.3	33.4	61.4	37.6	37.7	77.1	36.6	36.8	69.8	79.0	82.7
LnGrp LOS	E	C	C	E	D	D	E	D	D	E	E	F
Approach Vol, veh/h		1259			1647			377			782	
Approach Delay, s/veh		38.2			40.8			61.1			80.2	
Approach LOS		D			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.8	66.2	14.7	38.3	13.1	73.9	6.7	46.3
Change Period (Y+Rc), s	5.7	* 5.7	3.5	5.3	3.5	5.7	3.5	5.3
Max Green Setting (Gmax), s	14.3	* 61	12.7	33.9	10.7	64.7	5.3	41.3
Max Q Clear Time (g_c+I1), s	10.4	38.0	11.2	32.5	9.5	50.1	3.7	6.8
Green Ext Time (p_c), s	0.3	6.9	0.1	0.5	0.1	7.8	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	49.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1452	260	203	1206	70	214	162	267	60	151	50
Future Volume (veh/h)	90	1452	260	203	1206	70	214	162	267	60	151	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	94	1512	261	221	1311	73	233	176	269	65	164	51
Peak Hour Factor	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	119	1437	243	199	1718	95	280	155	237	119	193	60
Arrive On Green	0.07	0.48	0.48	0.22	1.00	1.00	0.12	0.23	0.23	0.03	0.14	0.14
Sat Flow, veh/h	1767	3015	510	1767	3391	188	1767	661	1011	1767	1357	422
Grp Volume(v), veh/h	94	871	902	221	680	704	233	0	445	65	0	215
Grp Sat Flow(s),veh/h/ln	1767	1763	1762	1767	1763	1816	1767	0	1672	1767	0	1779
Q Serve(g_s), s	6.3	57.2	57.2	13.5	0.0	0.0	10.6	0.0	28.1	4.0	0.0	14.1
Cycle Q Clear(g_c), s	6.3	57.2	57.2	13.5	0.0	0.0	10.6	0.0	28.1	4.0	0.0	14.1
Prop In Lane	1.00		0.29	1.00		0.10	1.00		0.60	1.00		0.24
Lane Grp Cap(c), veh/h	119	840	840	199	893	920	280	0	392	119	0	254
V/C Ratio(X)	0.79	1.04	1.07	1.11	0.76	0.76	0.83	0.00	1.14	0.55	0.00	0.85
Avail Cap(c_a), veh/h	146	840	840	199	893	920	280	0	392	119	0	427
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.63	0.88	0.88	0.88	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.1	31.4	31.4	46.5	0.0	0.0	49.6	0.0	46.0	47.7	0.0	50.2
Incr Delay (d2), s/veh	11.0	34.7	46.9	93.1	5.4	5.3	18.0	0.0	88.1	3.0	0.0	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	30.7	33.6	10.2	1.3	1.4	8.1	0.0	21.0	1.9	0.0	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	66.1	78.3	139.6	5.4	5.3	67.6	0.0	134.1	50.7	0.0	53.5
LnGrp LOS	E	F	F	F	A	A	E	A	F	D	A	D
Approach Vol, veh/h		1867			1605			678			280	
Approach Delay, s/veh		72.0			23.8			111.2			52.8	
Approach LOS		E			C			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	62.5	19.2	21.3	13.4	66.1	7.5	33.0
Change Period (Y+Rc), s	3.5	5.3	* 4.9	* 4.2	5.3	* 5.3	3.5	4.9
Max Green Setting (Gmax), s	13.5	57.2	* 4	* 29	9.9	* 61	4.0	28.1
Max Q Clear Time (g_c+I1), s	15.5	59.2	12.6	16.1	8.3	2.0	6.0	30.1
Green Ext Time (p_c), s	0.0	0.0	0.0	0.6	0.0	9.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	59.3
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	410	1407	370	150	1131	220	310	140	80	110	120	345
Future Volume (veh/h)	410	1407	370	150	1131	220	310	140	80	110	120	345
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	446	1529	378	156	1178	217	337	152	82	120	130	350
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	463	1432	341	1215	2208	404	306	607	311	166	403	359
Arrive On Green	0.13	0.51	0.51	0.71	1.00	1.00	0.09	0.27	0.27	0.05	0.23	0.23
Sat Flow, veh/h	3428	2824	672	3428	2975	545	3428	2255	1154	3428	1763	1570
Grp Volume(v), veh/h	446	932	975	156	695	700	337	117	117	120	130	350
Grp Sat Flow(s),veh/h/ln	1714	1763	1733	1714	1763	1757	1714	1763	1646	1714	1763	1570
Q Serve(g_s), s	18.1	71.0	71.0	2.0	0.0	0.0	12.5	7.3	7.8	4.8	8.6	31.0
Cycle Q Clear(g_c), s	18.1	71.0	71.0	2.0	0.0	0.0	12.5	7.3	7.8	4.8	8.6	31.0
Prop In Lane	1.00		0.39	1.00		0.31	1.00		0.70	1.00		1.00
Lane Grp Cap(c), veh/h	463	894	879	1215	1309	1304	306	475	443	166	403	359
V/C Ratio(X)	0.96	1.04	1.11	0.13	0.53	0.54	1.10	0.25	0.26	0.72	0.32	0.98
Avail Cap(c_a), veh/h	463	894	879	1215	1309	1304	306	475	443	203	403	359
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.2	34.5	34.5	13.4	0.0	0.0	63.7	40.0	40.2	65.7	45.0	53.6
Incr Delay (d2), s/veh	6.3	22.7	51.1	0.0	1.2	1.3	81.3	0.1	0.1	6.6	0.2	40.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	33.9	40.3	0.8	0.5	0.5	8.8	3.2	3.2	2.2	3.8	16.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.5	57.2	85.6	13.5	1.2	1.3	145.0	40.1	40.3	72.2	45.1	94.2
LnGrp LOS	E	F	F	B	A	A	F	D	D	E	D	F
Approach Vol, veh/h		2353			1551			571			600	
Approach Delay, s/veh		70.8			2.5			102.1			79.2	
Approach LOS		E			A			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	56.0	76.7	16.0	37.3	22.4	110.3	10.3	43.0
Change Period (Y+Rc), s	5.7	* 5.7	3.5	5.3	3.5	5.7	3.5	5.3
Max Green Setting (Gmax), s	50.3	* 71	12.5	32.0	18.9	58.6	8.3	36.2
Max Q Clear Time (g_c+I1), s	14.0	73.0	14.5	33.0	20.1	2.0	6.8	9.8
Green Ext Time (p_c), s	0.1	0.0	0.0	0.0	0.0	12.7	0.0	0.8

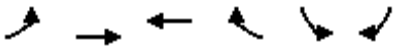
Intersection Summary	
HCM 6th Ctrl Delay	54.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Appendix N
Peak Hour Intersection Capacity Worksheets
Project Driveway Option



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	864	1260	12	18	23
Future Volume (veh/h)	20	864	1260	12	18	23
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	21	909	1340	12	25	29
Peak Hour Factor	0.95	0.95	0.94	0.94	0.72	0.72
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	32	3065	2908	26	58	52
Arrive On Green	0.02	0.87	1.00	1.00	0.03	0.03
Sat Flow, veh/h	1767	3618	3672	32	1767	1572
Grp Volume(v), veh/h	21	909	660	692	25	29
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1849	1767	1572
Q Serve(g_s), s	1.1	4.1	0.0	0.0	1.2	1.6
Cycle Q Clear(g_c), s	1.1	4.1	0.0	0.0	1.2	1.6
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	32	3065	1432	1502	58	52
V/C Ratio(X)	0.65	0.30	0.46	0.46	0.43	0.56
Avail Cap(c_a), veh/h	285	3065	1432	1502	560	498
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.46	0.46	0.84	0.84	1.00	1.00
Uniform Delay (d), s/veh	43.9	1.0	0.0	0.0	42.7	42.9
Incr Delay (d2), s/veh	3.8	0.1	0.9	0.9	1.9	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.4	0.4	0.6	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.7	1.1	0.9	0.9	44.5	46.4
LnGrp LOS	D	A	A	A	D	D
Approach Vol, veh/h		930	1352		54	
Approach Delay, s/veh		2.2	0.9		45.5	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		83.5		6.5	5.1	78.4
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		52.7		28.5	14.5	34.7
Max Q Clear Time (g_c+I1), s		6.1		3.6	3.1	2.0
Green Ext Time (p_c), s		7.3		0.1	0.0	13.5

Intersection Summary		
HCM 6th Ctrl Delay		2.4
HCM 6th LOS		A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	677	116	389	1121	42	91	34	214	75	96	42
Future Volume (veh/h)	23	677	116	389	1121	42	91	34	214	75	96	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	26	769	120	423	1218	42	99	37	187	86	110	47
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	38	1433	224	344	2238	77	219	310	257	251	310	260
Arrive On Green	0.04	0.94	0.94	0.19	0.64	0.64	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1767	3044	475	1767	3475	120	1214	1856	1538	1142	1856	1561
Grp Volume(v), veh/h	26	445	444	423	618	642	99	37	187	86	110	47
Grp Sat Flow(s),veh/h/ln	1767	1763	1756	1767	1763	1832	1214	1856	1538	1142	1856	1561
Q Serve(g_s), s	1.3	2.7	2.7	17.5	17.3	17.3	7.1	1.5	10.4	6.2	4.7	2.3
Cycle Q Clear(g_c), s	1.3	2.7	2.7	17.5	17.3	17.3	11.8	1.5	10.4	7.8	4.7	2.3
Prop In Lane	1.00		0.27	1.00		0.07	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	38	830	827	344	1135	1180	219	310	257	251	310	260
V/C Ratio(X)	0.69	0.54	0.54	1.23	0.54	0.54	0.45	0.12	0.73	0.34	0.36	0.18
Avail Cap(c_a), veh/h	265	830	827	344	1135	1180	463	682	566	481	682	574
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	0.62	0.62	0.62	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	1.5	1.5	36.3	8.8	8.8	38.4	31.9	35.6	35.2	33.2	32.2
Incr Delay (d2), s/veh	7.9	2.4	2.4	119.1	1.2	1.1	0.5	0.1	1.5	0.3	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.0	1.0	18.4	5.5	5.7	2.1	0.7	3.9	1.7	2.1	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.7	3.8	3.9	155.3	9.9	9.9	39.0	31.9	37.0	35.5	33.5	32.3
LnGrp LOS	D	A	A	F	A	A	D	C	D	D	C	C
Approach Vol, veh/h		915			1683			323			243	
Approach Delay, s/veh		5.2			46.5			37.1			34.0	
Approach LOS		A			D			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.0	49.1		19.9	5.4	64.7		19.9				
Change Period (Y+Rc), s	3.5	6.7		4.9	3.5	6.7		4.9				
Max Green Setting (Gmax), s	17.5	24.3		33.1	13.5	28.3		33.1				
Max Q Clear Time (g_c+I1), s	19.5	4.7		9.8	3.3	19.3		13.8				
Green Ext Time (p_c), s	0.0	8.5		0.6	0.0	5.5		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	57	8	91	156	0
Future Vol, veh/h	1	57	8	91	156	0
Conflicting Peds, #/hr	5	0	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	80	80	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1	83	10	114	175	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	324	185	185	0	-	0
Stage 1	185	-	-	-	-	-
Stage 2	139	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	668	855	1384	-	-	-
Stage 1	844	-	-	-	-	-
Stage 2	885	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	650	847	1371	-	-	-
Mov Cap-2 Maneuver	650	-	-	-	-	-
Stage 1	830	-	-	-	-	-
Stage 2	876	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1371	-	843	-	-
HCM Lane V/C Ratio	0.007	-	0.1	-	-
HCM Control Delay (s)	7.6	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

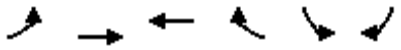
Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	10	40	0	0	5	13	2	0	16	0
Future Vol, veh/h	0	0	10	40	0	0	5	13	2	0	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	11	43	0	0	5	14	2	0	17	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	42	43	17	48	42	15	17	0	0	16	0	0
Stage 1	17	17	-	25	25	-	-	-	-	-	-	-
Stage 2	25	26	-	23	17	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	961	849	1062	953	850	1065	1600	-	-	1602	-	-
Stage 1	1002	881	-	993	874	-	-	-	-	-	-	-
Stage 2	993	874	-	995	881	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	959	846	1062	942	847	1065	1600	-	-	1602	-	-
Mov Cap-2 Maneuver	959	846	-	942	847	-	-	-	-	-	-	-
Stage 1	999	881	-	990	871	-	-	-	-	-	-	-
Stage 2	990	871	-	985	881	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.4	9	1.8	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1600	-	-	1062	942	1602	-	-
HCM Lane V/C Ratio	0.003	-	-	0.01	0.046	-	-	-
HCM Control Delay (s)	7.3	0	-	8.4	9	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	62	1345	1162	17	9	21
Future Volume (veh/h)	62	1345	1162	17	9	21
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	65	1401	1210	16	13	25
Peak Hour Factor	0.96	0.96	0.96	0.96	0.67	0.67
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	84	3183	2943	39	42	38
Arrive On Green	0.06	1.00	1.00	1.00	0.02	0.02
Sat Flow, veh/h	1767	3618	3654	47	1767	1572
Grp Volume(v), veh/h	65	1401	599	627	13	25
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1846	1767	1572
Q Serve(g_s), s	4.3	0.0	0.0	0.0	0.9	1.9
Cycle Q Clear(g_c), s	4.3	0.0	0.0	0.0	0.9	1.9
Prop In Lane	1.00			0.03	1.00	1.00
Lane Grp Cap(c), veh/h	84	3183	1457	1525	42	38
V/C Ratio(X)	0.78	0.44	0.41	0.41	0.31	0.66
Avail Cap(c_a), veh/h	361	3183	1457	1525	538	478
HCM Platoon Ratio	1.33	1.33	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.47	0.47	0.84	0.84	1.00	1.00
Uniform Delay (d), s/veh	55.6	0.0	0.0	0.0	57.6	58.1
Incr Delay (d2), s/veh	2.8	0.2	0.7	0.7	1.5	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.1	0.3	0.3	0.4	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	58.4	0.2	0.7	0.7	59.1	65.3
LnGrp LOS	E	A	A	A	E	E
Approach Vol, veh/h		1466	1226		38	
Approach Delay, s/veh		2.8	0.7		63.2	
Approach LOS		A	A		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		113.6		6.4	9.2	104.5
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		74.7		36.5	24.5	46.7
Max Q Clear Time (g_c+I1), s		2.0		3.9	6.3	2.0
Green Ext Time (p_c), s		15.3		0.0	0.1	12.7

Intersection Summary	
HCM 6th Ctrl Delay	2.7
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	1215	83	189	1071	80	94	78	325	85	54	45
Future Volume (veh/h)	54	1215	83	189	1071	80	94	78	325	85	54	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	57	1279	79	208	1177	83	111	92	306	94	60	42
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.85	0.85	0.85	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	73	1301	80	435	2060	145	302	400	337	230	400	337
Arrive On Green	0.08	0.77	0.77	0.25	0.62	0.62	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1767	3373	208	1767	3337	235	1275	1856	1562	975	1856	1562
Grp Volume(v), veh/h	57	667	691	208	621	639	111	92	306	94	60	42
Grp Sat Flow(s),veh/h/ln	1767	1763	1818	1767	1763	1809	1275	1856	1562	975	1856	1562
Q Serve(g_s), s	3.8	42.8	43.3	12.1	25.0	25.1	9.3	4.9	22.9	10.6	3.1	2.6
Cycle Q Clear(g_c), s	3.8	42.8	43.3	12.1	25.0	25.1	12.4	4.9	22.9	15.5	3.1	2.6
Prop In Lane	1.00		0.11	1.00		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	73	680	701	435	1088	1117	302	400	337	230	400	337
V/C Ratio(X)	0.78	0.98	0.98	0.48	0.57	0.57	0.37	0.23	0.91	0.41	0.15	0.12
Avail Cap(c_a), veh/h	243	680	701	435	1088	1117	400	543	457	305	543	457
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.90	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	13.3	13.4	38.7	13.6	13.6	43.2	38.8	45.9	45.2	38.1	37.9
Incr Delay (d2), s/veh	6.0	28.5	28.7	0.2	1.7	1.6	0.3	0.1	15.2	0.4	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	10.3	10.7	5.1	9.3	9.6	2.9	2.2	10.2	2.6	1.4	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.5	41.8	42.1	38.9	15.3	15.2	43.5	38.9	61.2	45.7	38.2	38.0
LnGrp LOS	E	D	D	D	B	B	D	D	E	D	D	D
Approach Vol, veh/h		1415			1468			509			196	
Approach Delay, s/veh		42.7			18.6			53.3			41.7	
Approach LOS		D			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.2	53.0		30.8	8.5	80.8		30.8
Change Period (Y+Rc), s	6.7	* 6.7		4.9	3.5	6.7		4.9
Max Green Setting (Gmax), s	23.5	* 46		35.1	16.5	53.3		35.1
Max Q Clear Time (g_c+I1), s	14.1	45.3		17.5	5.8	27.1		24.9
Green Ext Time (p_c), s	0.2	0.9		0.5	0.0	10.8		0.8

Intersection Summary	
HCM 6th Ctrl Delay	34.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	19	72	140	165	1
Future Vol, veh/h	0	19	72	140	165	1
Conflicting Peds, #/hr	0	0	4	0	0	4
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	47	47	84	84	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	40	86	167	204	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	548	209	209	0	-	0
Stage 1	209	-	-	-	-	-
Stage 2	339	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	496	829	1356	-	-	-
Stage 1	824	-	-	-	-	-
Stage 2	719	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	461	826	1351	-	-	-
Mov Cap-2 Maneuver	461	-	-	-	-	-
Stage 1	768	-	-	-	-	-
Stage 2	716	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	2.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1351	-	826	-	-
HCM Lane V/C Ratio	0.063	-	0.049	-	-
HCM Control Delay (s)	7.8	-	9.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-

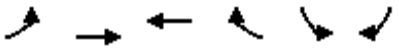
Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	5	45	0	0	12	34	15	0	16	0
Future Vol, veh/h	0	0	5	45	0	0	12	34	15	0	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	49	0	0	13	37	16	0	17	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	88	96	17	91	88	45	17	0	0	53	0	0
Stage 1	17	17	-	71	71	-	-	-	-	-	-	-
Stage 2	71	79	-	20	17	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	897	794	1062	893	802	1025	1600	-	-	1553	-	-
Stage 1	1002	881	-	939	836	-	-	-	-	-	-	-
Stage 2	939	829	-	999	881	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	892	788	1062	883	796	1025	1600	-	-	1553	-	-
Mov Cap-2 Maneuver	892	788	-	883	796	-	-	-	-	-	-	-
Stage 1	994	881	-	931	829	-	-	-	-	-	-	-
Stage 2	931	822	-	994	881	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.4	9.3	1.4	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1600	-	-	1062	883	1553	-	-
HCM Lane V/C Ratio	0.008	-	-	0.005	0.055	-	-	-
HCM Control Delay (s)	7.3	0	-	8.4	9.3	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	915	1298	12	18	23
Future Volume (veh/h)	20	915	1298	12	18	23
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	21	963	1381	12	25	29
Peak Hour Factor	0.95	0.95	0.94	0.94	0.72	0.72
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	32	3065	2909	25	58	52
Arrive On Green	0.02	0.87	1.00	1.00	0.03	0.03
Sat Flow, veh/h	1767	3618	3674	31	1767	1572
Grp Volume(v), veh/h	21	963	680	713	25	29
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1849	1767	1572
Q Serve(g_s), s	1.1	4.4	0.0	0.0	1.2	1.6
Cycle Q Clear(g_c), s	1.1	4.4	0.0	0.0	1.2	1.6
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	32	3065	1432	1502	58	52
V/C Ratio(X)	0.65	0.31	0.47	0.47	0.43	0.56
Avail Cap(c_a), veh/h	285	3065	1432	1502	560	498
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.43	0.43	0.74	0.74	1.00	1.00
Uniform Delay (d), s/veh	43.9	1.1	0.0	0.0	42.7	42.9
Incr Delay (d2), s/veh	3.6	0.1	0.8	0.8	1.9	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.3	0.3	0.6	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.5	1.2	0.8	0.8	44.5	46.4
LnGrp LOS	D	A	A	A	D	D
Approach Vol, veh/h		984	1393		54	
Approach Delay, s/veh		2.2	0.8		45.5	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		83.5		6.5	5.1	78.4
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		52.7		28.5	14.5	34.7
Max Q Clear Time (g_c+I1), s		6.4		3.6	3.1	2.0
Green Ext Time (p_c), s		7.9		0.1	0.0	14.1

Intersection Summary		
HCM 6th Ctrl Delay		2.4
HCM 6th LOS		A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	690	154	421	1128	42	122	35	241	75	97	42
Future Volume (veh/h)	23	690	154	421	1128	42	122	35	241	75	97	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	26	784	152	458	1226	35	133	38	45	86	111	37
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	445	794	154	631	1318	38	108	174	143	106	172	144
Arrive On Green	0.50	0.54	0.54	0.36	0.38	0.38	0.06	0.09	0.09	0.06	0.09	0.09
Sat Flow, veh/h	1767	2929	568	1767	3499	100	1767	1856	1527	1767	1856	1552
Grp Volume(v), veh/h	26	472	464	458	617	644	133	38	45	86	111	37
Grp Sat Flow(s),veh/h/ln	1767	1763	1734	1767	1763	1836	1767	1856	1527	1767	1856	1552
Q Serve(g_s), s	0.7	23.7	23.7	20.2	30.2	30.3	5.5	1.7	1.2	4.3	5.2	1.2
Cycle Q Clear(g_c), s	0.7	23.7	23.7	20.2	30.2	30.3	5.5	1.7	1.2	4.3	5.2	1.2
Prop In Lane	1.00		0.33	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	478	470	631	664	691	108	174	143	106	172	144
V/C Ratio(X)	0.06	0.99	0.99	0.73	0.93	0.93	1.23	0.22	0.31	0.81	0.64	0.26
Avail Cap(c_a), veh/h	445	478	470	631	664	691	108	559	460	106	557	466
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	0.58	0.58	0.58	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	20.4	20.4	25.1	26.9	26.9	42.3	37.7	9.6	41.8	39.4	14.6
Incr Delay (d2), s/veh	0.0	37.3	37.7	2.1	14.3	14.0	161.4	0.2	0.5	36.0	1.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	10.3	10.1	8.1	14.1	14.6	7.2	0.8	0.9	2.9	2.4	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.9	57.8	58.1	27.2	41.2	40.9	203.7	38.0	10.1	77.8	40.9	14.9
LnGrp LOS	B	E	E	C	D	D	F	D	B	E	D	B
Approach Vol, veh/h		962			1719			216			234	
Approach Delay, s/veh		56.8			37.4			134.2			50.4	
Approach LOS		E			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	35.7	31.1	10.0	13.2	26.2	40.6	9.9	13.3
Change Period (Y+Rc), s	3.5	6.7	4.5	4.9	3.5	6.7	4.5	4.9
Max Green Setting (Gmax), s	13.5	24.4	5.5	27.0	4.0	33.9	5.4	27.1
Max Q Clear Time (g_c+I1), s	22.2	25.7	7.5	7.2	2.7	32.3	6.3	3.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.0	1.2	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	51.0
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	57	8	92	157	0
Future Vol, veh/h	1	57	8	92	157	0
Conflicting Peds, #/hr	5	0	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	80	80	89	89
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1	83	10	115	176	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	326	186	186	0	-	0
Stage 1	186	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	666	854	1382	-	-	-
Stage 1	843	-	-	-	-	-
Stage 2	884	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	648	846	1369	-	-	-
Mov Cap-2 Maneuver	648	-	-	-	-	-
Stage 1	829	-	-	-	-	-
Stage 2	875	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1369	-	842	-	-
HCM Lane V/C Ratio	0.007	-	0.1	-	-
HCM Control Delay (s)	7.6	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

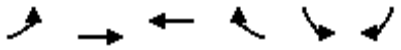
Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	10	40	0	0	5	13	2	0	16	0
Future Vol, veh/h	0	0	10	40	0	0	5	13	2	0	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	11	43	0	0	5	14	2	0	17	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	42	43	17	48	42	15	17	0	0	16	0	0
Stage 1	17	17	-	25	25	-	-	-	-	-	-	-
Stage 2	25	26	-	23	17	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	961	849	1062	953	850	1065	1600	-	-	1602	-	-
Stage 1	1002	881	-	993	874	-	-	-	-	-	-	-
Stage 2	993	874	-	995	881	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	959	846	1062	942	847	1065	1600	-	-	1602	-	-
Mov Cap-2 Maneuver	959	846	-	942	847	-	-	-	-	-	-	-
Stage 1	999	881	-	990	871	-	-	-	-	-	-	-
Stage 2	990	871	-	985	881	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.4	9	1.8	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1600	-	-	1062	942	1602	-	-
HCM Lane V/C Ratio	0.003	-	-	0.01	0.046	-	-	-
HCM Control Delay (s)	7.3	0	-	8.4	9	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	62	1376	1202	17	9	21
Future Volume (veh/h)	62	1376	1202	17	9	21
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	65	1433	1252	16	13	25
Peak Hour Factor	0.96	0.96	0.96	0.96	0.67	0.67
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	84	3183	2944	38	42	38
Arrive On Green	0.06	1.00	1.00	1.00	0.02	0.02
Sat Flow, veh/h	1767	3618	3656	46	1767	1572
Grp Volume(v), veh/h	65	1433	619	649	13	25
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1846	1767	1572
Q Serve(g_s), s	4.3	0.0	0.0	0.0	0.9	1.9
Cycle Q Clear(g_c), s	4.3	0.0	0.0	0.0	0.9	1.9
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	84	3183	1457	1525	42	38
V/C Ratio(X)	0.78	0.45	0.43	0.43	0.31	0.66
Avail Cap(c_a), veh/h	361	3183	1457	1525	538	478
HCM Platoon Ratio	1.33	1.33	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.44	0.44	0.72	0.72	1.00	1.00
Uniform Delay (d), s/veh	55.6	0.0	0.0	0.0	57.6	58.1
Incr Delay (d2), s/veh	2.6	0.2	0.7	0.6	1.5	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.1	0.3	0.3	0.4	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	58.2	0.2	0.7	0.6	59.1	65.3
LnGrp LOS	E	A	A	A	E	E
Approach Vol, veh/h		1498	1268		38	
Approach Delay, s/veh		2.7	0.6		63.2	
Approach LOS		A	A		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		113.6		6.4	9.2	104.5
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		74.7		36.5	24.5	46.7
Max Q Clear Time (g_c+I1), s		2.0		3.9	6.3	2.0
Green Ext Time (p_c), s		15.9		0.0	0.1	13.5

Intersection Summary		
HCM 6th Ctrl Delay		2.6
HCM 6th LOS		A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	1225	104	208	1087	80	118	79	345	85	55	45
Future Volume (veh/h)	54	1225	104	208	1087	80	118	79	345	85	55	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	57	1289	98	229	1195	83	139	93	53	94	61	43
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.85	0.85	0.85	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	73	1295	98	482	2165	150	149	150	125	117	117	97
Arrive On Green	0.05	0.52	0.52	0.27	0.65	0.65	0.08	0.08	0.08	0.07	0.06	0.06
Sat Flow, veh/h	1767	3321	252	1767	3341	232	1767	1856	1543	1767	1856	1535
Grp Volume(v), veh/h	57	683	704	229	630	648	139	93	53	94	61	43
Grp Sat Flow(s),veh/h/ln	1767	1763	1810	1767	1763	1810	1767	1856	1543	1767	1856	1535
Q Serve(g_s), s	3.8	46.1	46.6	13.0	23.5	23.6	9.4	5.8	2.3	6.3	3.8	3.2
Cycle Q Clear(g_c), s	3.8	46.1	46.6	13.0	23.5	23.6	9.4	5.8	2.3	6.3	3.8	3.2
Prop In Lane	1.00		0.14	1.00		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	73	687	706	482	1142	1173	149	150	125	117	117	97
V/C Ratio(X)	0.78	0.99	1.00	0.48	0.55	0.55	0.93	0.62	0.42	0.80	0.52	0.44
Avail Cap(c_a), veh/h	81	687	706	482	1142	1173	149	430	358	137	417	345
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.2	28.7	28.8	36.5	11.6	11.6	54.6	53.3	18.8	55.3	54.5	54.2
Incr Delay (d2), s/veh	27.9	30.8	31.4	0.2	1.4	1.4	54.4	1.5	0.8	24.9	1.3	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	22.2	23.1	5.5	8.5	8.7	6.4	2.8	1.5	3.6	1.8	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.1	59.5	60.2	36.7	13.0	13.0	109.1	54.9	19.6	80.1	55.8	55.4
LnGrp LOS	F	E	E	D	B	B	F	D	B	F	E	E
Approach Vol, veh/h		1444			1507			285			198	
Approach Delay, s/veh		60.8			16.6			74.7			67.2	
Approach LOS		E			B			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	53.5	14.6	12.5	8.5	84.5	12.5	14.6
Change Period (Y+Rc), s	6.7	* 6.7	4.5	4.9	3.5	6.7	4.5	4.9
Max Green Setting (Gmax), s	16.5	* 47	10.1	27.0	5.5	57.8	9.3	27.8
Max Q Clear Time (g_c+I1), s	15.3	48.6	11.4	5.8	5.8	25.6	8.3	7.8
Green Ext Time (p_c), s	0.1	0.0	0.0	0.2	0.0	11.9	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	42.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	19	72	141	166	1
Future Vol, veh/h	0	19	72	141	166	1
Conflicting Peds, #/hr	0	0	4	0	0	4
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	47	47	84	84	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	40	86	168	205	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	550	210	210	0	-	0
Stage 1	210	-	-	-	-	-
Stage 2	340	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	494	828	1355	-	-	-
Stage 1	823	-	-	-	-	-
Stage 2	719	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	459	825	1350	-	-	-
Mov Cap-2 Maneuver	459	-	-	-	-	-
Stage 1	767	-	-	-	-	-
Stage 2	716	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	2.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1350	-	825	-	-
HCM Lane V/C Ratio	0.063	-	0.049	-	-
HCM Control Delay (s)	7.8	-	9.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-

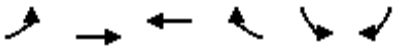
Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	5	45	0	0	12	34	15	0	16	0
Future Vol, veh/h	0	0	5	45	0	0	12	34	15	0	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	49	0	0	13	37	16	0	17	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	88	96	17	91	88	45	17	0	0	53	0	0
Stage 1	17	17	-	71	71	-	-	-	-	-	-	-
Stage 2	71	79	-	20	17	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	897	794	1062	893	802	1025	1600	-	-	1553	-	-
Stage 1	1002	881	-	939	836	-	-	-	-	-	-	-
Stage 2	939	829	-	999	881	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	892	788	1062	883	796	1025	1600	-	-	1553	-	-
Mov Cap-2 Maneuver	892	788	-	883	796	-	-	-	-	-	-	-
Stage 1	994	881	-	931	829	-	-	-	-	-	-	-
Stage 2	931	822	-	994	881	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.4	9.3	1.4	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1600	-	-	1062	883	1553	-	-
HCM Lane V/C Ratio	0.008	-	-	0.005	0.055	-	-	-
HCM Control Delay (s)	7.3	0	-	8.4	9.3	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	1221	1460	21	30	32
Future Volume (veh/h)	31	1221	1460	21	30	32
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	33	1285	1553	21	33	33
Peak Hour Factor	0.95	0.95	0.94	0.94	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	44	3054	2857	39	63	56
Arrive On Green	0.02	0.87	1.00	1.00	0.04	0.04
Sat Flow, veh/h	1767	3618	3653	48	1767	1572
Grp Volume(v), veh/h	33	1285	768	806	33	33
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1846	1767	1572
Q Serve(g_s), s	1.7	6.9	0.0	0.0	1.7	1.9
Cycle Q Clear(g_c), s	1.7	6.9	0.0	0.0	1.7	1.9
Prop In Lane	1.00			0.03	1.00	1.00
Lane Grp Cap(c), veh/h	44	3054	1415	1481	63	56
V/C Ratio(X)	0.75	0.42	0.54	0.54	0.52	0.58
Avail Cap(c_a), veh/h	285	3054	1415	1481	560	498
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.11	0.11	0.38	0.38	1.00	1.00
Uniform Delay (d), s/veh	43.6	1.3	0.0	0.0	42.6	42.7
Incr Delay (d2), s/veh	1.1	0.0	0.6	0.5	2.4	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	0.2	0.8	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.7	1.3	0.6	0.5	45.1	46.3
LnGrp LOS	D	A	A	A	D	D
Approach Vol, veh/h		1318	1574		66	
Approach Delay, s/veh		2.4	0.6		45.7	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		83.3		6.7	5.7	77.5
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		52.7		28.5	14.5	34.7
Max Q Clear Time (g_c+I1), s		8.9		3.9	3.7	2.0
Green Ext Time (p_c), s		12.2		0.1	0.0	17.0

Intersection Summary		
HCM 6th Ctrl Delay		2.4
HCM 6th LOS		A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	935	166	391	1190	116	148	62	170	104	116	87
Future Volume (veh/h)	68	935	166	391	1190	116	148	62	170	104	116	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	74	1016	158	425	1293	115	161	67	163	113	126	84
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	79	1385	215	226	1760	156	128	255	211	110	237	199
Arrive On Green	0.06	0.60	0.60	0.13	0.54	0.54	0.07	0.14	0.14	0.06	0.13	0.13
Sat Flow, veh/h	1767	3046	473	1767	3271	290	1767	1856	1535	1767	1856	1558
Grp Volume(v), veh/h	74	587	587	425	695	713	161	67	163	113	126	84
Grp Sat Flow(s),veh/h/ln	1767	1763	1756	1767	1763	1798	1767	1856	1535	1767	1856	1558
Q Serve(g_s), s	3.8	21.3	21.4	11.5	27.1	27.3	6.5	2.9	9.2	5.6	5.7	4.5
Cycle Q Clear(g_c), s	3.8	21.3	21.4	11.5	27.1	27.3	6.5	2.9	9.2	5.6	5.7	4.5
Prop In Lane	1.00		0.27	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	79	801	798	226	948	967	128	255	211	110	237	199
V/C Ratio(X)	0.94	0.73	0.73	1.88	0.73	0.74	1.26	0.26	0.77	1.03	0.53	0.42
Avail Cap(c_a), veh/h	79	801	798	226	948	967	128	575	476	110	557	467
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	0.43	0.43	0.43	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	13.9	13.9	39.3	15.9	15.9	41.8	34.7	37.4	42.2	36.7	36.2
Incr Delay (d2), s/veh	76.8	5.4	5.4	404.1	2.2	2.2	165.9	0.2	2.3	93.5	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	7.0	7.0	30.1	9.7	10.0	8.6	1.3	3.5	5.2	2.6	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.1	19.3	19.4	443.4	18.1	18.1	207.7	34.9	39.7	135.7	37.4	36.7
LnGrp LOS	F	B	B	F	B	B	F	C	D	F	D	D
Approach Vol, veh/h		1248			1833			391			323	
Approach Delay, s/veh		25.2			116.7			108.0			71.6	
Approach LOS		C			F			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	47.6	11.0	16.4	7.5	55.1	10.1	17.3
Change Period (Y+Rc), s	3.5	6.7	4.5	4.9	3.5	6.7	4.5	4.9
Max Green Setting (Gmax), s	11.5	25.4	6.5	27.0	4.0	32.9	5.6	27.9
Max Q Clear Time (g_c+I1), s	13.5	23.4	8.5	7.7	5.8	29.3	7.6	11.2
Green Ext Time (p_c), s	0.0	1.6	0.0	0.5	0.0	2.7	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	81.9
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	57	8	238	250	0
Future Vol, veh/h	1	57	8	238	250	0
Conflicting Peds, #/hr	5	0	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1	62	9	259	272	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	564	282	282	0	-	0
Stage 1	282	-	-	-	-	-
Stage 2	282	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	485	755	1275	-	-	-
Stage 1	763	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	472	748	1263	-	-	-
Mov Cap-2 Maneuver	472	-	-	-	-	-
Stage 1	750	-	-	-	-	-
Stage 2	755	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1263	-	741	-	-
HCM Lane V/C Ratio	0.007	-	0.085	-	-
HCM Control Delay (s)	7.9	-	10.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

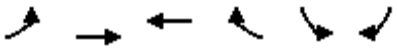
Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	10	40	0	0	5	13	2	0	16	0
Future Vol, veh/h	0	0	10	40	0	0	5	13	2	0	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	11	43	0	0	5	14	2	0	17	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	42	43	17	48	42	15	17	0	0	16	0	0
Stage 1	17	17	-	25	25	-	-	-	-	-	-	-
Stage 2	25	26	-	23	17	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	961	849	1062	953	850	1065	1600	-	-	1602	-	-
Stage 1	1002	881	-	993	874	-	-	-	-	-	-	-
Stage 2	993	874	-	995	881	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	959	846	1062	942	847	1065	1600	-	-	1602	-	-
Mov Cap-2 Maneuver	959	846	-	942	847	-	-	-	-	-	-	-
Stage 1	999	881	-	990	871	-	-	-	-	-	-	-
Stage 2	990	871	-	985	881	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.4	9	1.8	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1600	-	-	1062	942	1602	-	-
HCM Lane V/C Ratio	0.003	-	-	0.01	0.046	-	-	-
HCM Control Delay (s)	7.3	0	-	8.4	9	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	77	2032	1289	22	20	26
Future Volume (veh/h)	77	2032	1289	22	20	26
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	80	2117	1343	21	22	24
Peak Hour Factor	0.96	0.96	0.96	0.96	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	102	3175	2890	45	46	41
Arrive On Green	0.08	1.00	1.00	1.00	0.03	0.03
Sat Flow, veh/h	1767	3618	3644	56	1767	1572
Grp Volume(v), veh/h	80	2117	666	698	22	24
Grp Sat Flow(s),veh/h/ln	1767	1763	1763	1844	1767	1572
Q Serve(g_s), s	5.3	0.0	0.0	0.0	1.5	1.8
Cycle Q Clear(g_c), s	5.3	0.0	0.0	0.0	1.5	1.8
Prop In Lane	1.00			0.03	1.00	1.00
Lane Grp Cap(c), veh/h	102	3175	1435	1501	46	41
V/C Ratio(X)	0.79	0.67	0.46	0.46	0.48	0.58
Avail Cap(c_a), veh/h	361	3175	1435	1501	538	478
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.55	0.55	1.00	1.00
Uniform Delay (d), s/veh	54.7	0.0	0.0	0.0	57.6	57.8
Incr Delay (d2), s/veh	0.5	0.1	0.6	0.6	2.8	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.2	0.2	0.7	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	55.2	0.1	0.6	0.6	60.4	62.6
LnGrp LOS	E	A	A	A	E	E
Approach Vol, veh/h		2197	1364		46	
Approach Delay, s/veh		2.1	0.6		61.6	
Approach LOS		A	A		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		113.4		6.6	10.4	103.0
Change Period (Y+Rc), s		5.3		3.5	3.5	5.3
Max Green Setting (Gmax), s		74.7		36.5	24.5	46.7
Max Q Clear Time (g_c+I1), s		2.0		3.8	7.3	2.0
Green Ext Time (p_c), s		36.2		0.1	0.1	15.3
Intersection Summary						
HCM 6th Ctrl Delay			2.3			
HCM 6th LOS			A			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	1740	144	239	1110	117	135	91	332	85	81	74
Future Volume (veh/h)	105	1740	144	239	1110	117	135	91	332	85	81	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	111	1832	131	260	1207	116	147	99	296	92	88	72
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	136	1486	105	363	1949	187	110	189	158	102	180	150
Arrive On Green	0.08	0.45	0.45	0.21	0.60	0.60	0.06	0.10	0.10	0.06	0.10	0.10
Sat Flow, veh/h	1767	3340	236	1767	3246	311	1767	1856	1549	1767	1856	1548
Grp Volume(v), veh/h	111	956	1007	260	654	669	147	99	296	92	88	72
Grp Sat Flow(s),veh/h/ln	1767	1763	1813	1767	1763	1794	1767	1856	1549	1767	1856	1548
Q Serve(g_s), s	7.4	53.4	53.4	16.4	28.3	28.5	7.5	6.1	8.1	6.2	5.4	5.3
Cycle Q Clear(g_c), s	7.4	53.4	53.4	16.4	28.3	28.5	7.5	6.1	8.1	6.2	5.4	5.3
Prop In Lane	1.00		0.13	1.00		0.17	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	136	784	807	363	1058	1077	110	189	158	102	180	150
V/C Ratio(X)	0.82	1.22	1.25	0.72	0.62	0.62	1.33	0.52	1.87	0.91	0.49	0.48
Avail Cap(c_a), veh/h	158	784	807	363	1058	1077	110	427	356	102	417	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	0.67	0.40	0.40	0.40	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.6	33.3	33.3	44.4	15.2	15.3	56.3	51.1	23.7	56.2	51.4	51.3
Incr Delay (d2), s/veh	15.4	106.5	118.6	2.4	1.1	1.1	198.2	0.8	408.3	60.0	0.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	44.6	48.6	7.2	10.5	10.7	9.4	2.8	20.9	4.4	2.5	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.0	139.8	151.9	46.8	16.3	16.4	254.4	51.9	432.0	116.2	52.1	52.2
LnGrp LOS	E	F	F	D	B	B	F	D	F	F	D	D
Approach Vol, veh/h		2074			1583			542			252	
Approach Delay, s/veh		142.0			21.3			314.4			75.5	
Approach LOS		F			C			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	60.1	12.0	16.5	12.7	78.7	11.4	17.1
Change Period (Y+Rc), s	6.7	* 6.7	4.5	4.9	3.5	6.7	4.5	4.9
Max Green Setting (Gmax), s	12.5	* 53	7.5	27.0	10.7	55.2	6.9	27.6
Max Q Clear Time (g_c+I1), s	10.4	55.4	9.5	7.4	9.4	30.5	8.2	10.1
Green Ext Time (p_c), s	0.0	0.0	0.0	0.3	0.0	11.2	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	116.3
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	19	72	241	221	1
Future Vol, veh/h	0	19	72	241	221	1
Conflicting Peds, #/hr	0	0	4	0	0	4
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	21	78	262	240	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	663	245	245	0	-	0
Stage 1	245	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	425	791	1315	-	-	-
Stage 1	793	-	-	-	-	-
Stage 2	662	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	396	788	1310	-	-	-
Mov Cap-2 Maneuver	396	-	-	-	-	-
Stage 1	742	-	-	-	-	-
Stage 2	659	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	1.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1310	-	788	-	-
HCM Lane V/C Ratio	0.06	-	0.026	-	-
HCM Control Delay (s)	7.9	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.1	-	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	5	45	0	0	12	34	15	0	16	0
Future Vol, veh/h	0	0	5	45	0	0	12	34	15	0	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	49	0	0	13	37	16	0	17	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	88	96	17	91	88	45	17	0	0	53	0	0
Stage 1	17	17	-	71	71	-	-	-	-	-	-	-
Stage 2	71	79	-	20	17	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	897	794	1062	893	802	1025	1600	-	-	1553	-	-
Stage 1	1002	881	-	939	836	-	-	-	-	-	-	-
Stage 2	939	829	-	999	881	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	892	788	1062	883	796	1025	1600	-	-	1553	-	-
Mov Cap-2 Maneuver	892	788	-	883	796	-	-	-	-	-	-	-
Stage 1	994	881	-	931	829	-	-	-	-	-	-	-
Stage 2	931	822	-	994	881	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.4	9.3	1.4	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1600	-	-	1062	883	1553	-	-
HCM Lane V/C Ratio	0.008	-	-	0.005	0.055	-	-	-
HCM Control Delay (s)	7.3	0	-	8.4	9.3	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-

APPENDIX P-1 SEWER SYSTEM ANALYSIS

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DEXTER WILSON ENGINEERING, INC.

WATER • WASTEWATER • RECYCLED WATER

CONSULTING ENGINEERS

SEWER SYSTEM ANALYSIS
FOR THE
FOX POINT FARMS PROJECT

March 20, 2020

2234 FARADAY AVENUE • CARLSBAD, CA • (760) 438-4422

SEWER SYSTEM ANALYSIS
FOR THE
FOX POINT FARMS PROJECT

March 20, 2020



Prepared by:
Dexter Wilson Engineering, Inc.
2234 Faraday Avenue
Carlsbad, CA 92008

Job No. 1080-001

DEXTER WILSON ENGINEERING, INC.

DEXTER S. WILSON, P.E.
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STEVEN J. HENDERSON, P.E.

March 20, 2020 1080-001

Nolen Communities
1680 N. Coast Highway, #51
Encinitas, CA 92024

Attention: Sean Kilkenny, Project Manager

Subject: Sewer System Analysis for Fox Point Farms

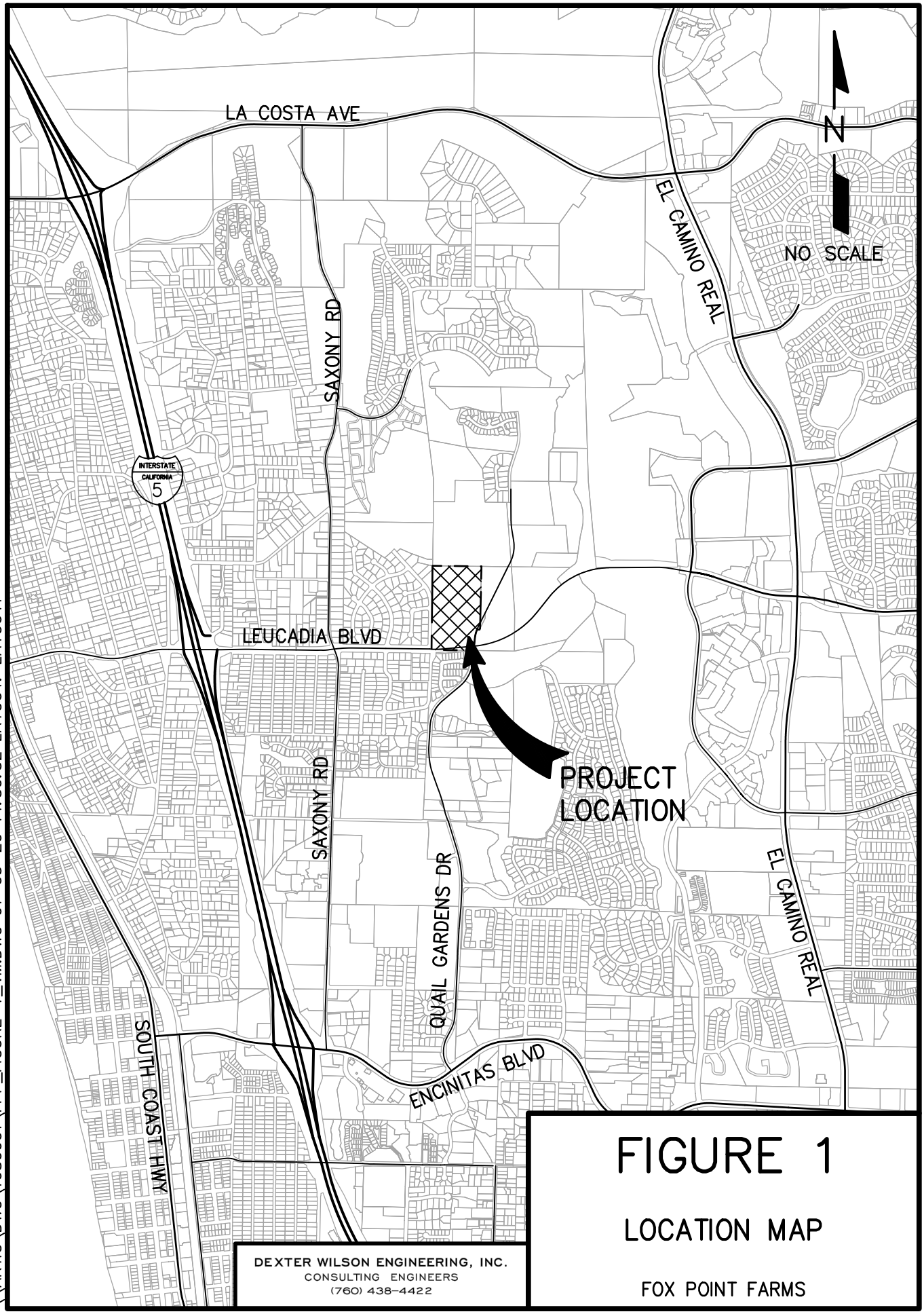
INTRODUCTION

This letter-report provides a sewer system analysis for the Fox Point Farms project in the City of Encinitas. This report will evaluate sewer service to the project with recommended required onsite facilities to serve the project.

PROJECT OVERVIEW

The Fox Point Farms project is located in the City of Encinitas at the northwest corner of Quail Gardens Drive and Leucadia Boulevard. The property has been used as a plant nursery historically. Figure 1 presents a vicinity map showing the subject property.

2234 FARADAY AVENUE • CARLSBAD, CA 92008 • (760) 438-4422 • FAX (760) 438-0173



\\ARTIC\DWG\1080001\FPF_FIGURE-1_VM.DWG 01-03-20 14:50:52 LAYOUT: LAYOUT1

FIGURE 1

LOCATION MAP

FOX POINT FARMS

DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
(760) 438-4422

DEVELOPMENT PLAN

The Fox Point Farms project is approximately 21.5 gross acres and plans to develop the site into a mix of residential and non-residential uses. Residential uses would include apartments, bungalows, carriage units, and townhomes totaling 250 units. Non-residential uses would include 5.5 acres of agricultural fields, a 10,000 square foot recreation center, 3,500 square foot restaurant, and 3,000 square foot barn. Access to the site will be from a driveway off Quail Gardens Drive on the east and a driveway from Sidonia Street to the west.

TOPOGRAPHY

The existing topography on the property ranges in elevation from a low of approximately 300 feet to a high of approximately 320 feet. The topography generally increases from south to north.

SEWER SERVICE

Sewer service to the Fox Point Farms project will be provided by the City of Encinitas. The project is situated at the very north end of the District service area within the Encinitas Sanitary Division service area. Flows from this area are eventually conveyed to the Encinitas Trunk Sewer line located south of the project in Encinitas Boulevard.

PLANNING CRITERIA

Sewer system planning criteria are based on the criteria provided in the 2009 City of Encinitas Engineering Design Manual and April 2011 Master Plan Update. The pertinent criteria applicable to this study are summarized in Table 1 below.

TABLE 1
PLANNING CRITERIA SUMMARY

Description	Criteria	Source
SF Residential Sewer Flow (EDU)	280 gpd/unit	2009 Engineering Design Manual
Commercial Sewer Flow, 1st 1,000 SF	1.2 EDU	2009 Engineering Design Manual
Commercial Sewer Flow, Each Additional 1,000 SF or Fraction Thereof	0.7 EDU	2009 Engineering Design Manual
MF Residential Sewer Flow	196 gpd/unit	2009 Engineering Design Manual
Peak Dry Weather Flow Factor (Q in CFS)	$Q_{PK} = 2.64 \times (Q_{AVG})^{0.905}$	2009 Engineering Design Manual
Minimum Pipe Diameter	8"	2010 Master Plan
Minimum Velocity at Peak Flow	2.0 Ft/s	2010 Master Plan
Manning's Roughness Coefficient	0.013	2010 Master Plan
Maximum Depth-to-Diameter Ratio, 12" and Smaller	0.50	2010 Master Plan
Maximum Depth-to-Diameter Ratio, Larger than 12"	0.75	2010 Master Plan

PROJECTED SEWER FLOWS

Based on the criteria presented above, Table 2 summarizes the projected average sewer flows for the Fox Point Farms project for the area proposed to be served the City system. The projected peak flow for the project is 177,290 gpd (123 gpm).

TABLE 2
FOX POINT FARMS
PROJECTED SEWER FLOWS

Land Use	Quantity	Demand Factor	Average Demand, gpd
MF Residential	250 units	196 gpd/unit	49,000
Recreation Center	10,000 SF	1.2 EDU/1st 1,000 SF 0.7 EDU/Ea. Add'l 1,000 SF	2,100
Restaurant	3,500 SF	1.2 EDU/1st 1,000 SF 0.7 EDU/Ea. Add'l 1,000 SF	1,120
Barn	3,000 SF	1.2 EDU/1st 1,000 SF 0.7 EDU/Ea. Add'l 1,000 SF	730
Agricultural	5.5 ac	0 gpd/ac	0
TOTAL			**52,950**

EXISTING SEWER FACILITIES

The existing City of Encinitas sewer system in the vicinity of the project consists of gravity sewer pipelines. There is an 8-inch gravity sewer line in Quail Gardens Drive along the east side of the project. This sewer line conveys flow south to Leucadia Boulevard and then west. There is also an existing 8-inch sewer line onsite that conveys flow south to Leucadia Boulevard. Flow is then conveyed west in Leucadia Boulevard and south from Leucadia Boulevard where it crosses Interstate 5 and eventually connects to the Encinitas Trunk Sewer in Encinitas Boulevard. The Encinitas Trunk Sewer conveys flow west to the Moonlight Beach Pump Station. This pump station conveys flow north for treatment and disposal. There is an existing 8-inch sewer line in Sidonia Street that serves the existing

tract to the west and conveys flows to the Leucadia Wastewater District. The location of existing sewer facilities and sewer service area boundaries in the vicinity of the project are shown on Figure 2.

PROPOSED SEWER SYSTEM

The entire project is within the City of Encinitas for sewer service and all development on the site will sewer to the existing City sewer collection system in Leucadia Boulevard. The project flows will be conveyed to Sidonia Street at the approximate location of the secondary access point, and then will be conveyed southerly to a point of connection to the existing City sewer system in Leucadia Boulevard. Figure 2 provides the proposed sewer system for the project.

Offsite Impacts

While the estimated flows from the project are relatively low, an evaluation of downstream capacity in the existing City system will be required. This evaluation is typically done by the agencies by adding flows to their overall hydraulic model and evaluating impacts.

Thank you for the opportunity to work on this project. If you have any questions on the content of this report, please let us know.

Dexter Wilson Engineering, Inc.

Stephen M. Nielsen

Stephen M. Nielsen, P.E.

SMN:ps

Attachment(s)

ENCINITAS SANITARY DIVISION

QUAIL GARDENS DR

EX.8"

8"

LEUCADIA BLVD

EXISTING 8" SEWER TO BE REMOVED

SIDONIA STREET

LEUCADIA WASTEWATER DISTRICT

CONNECT TO EX.8" LINE

REMOVE EXISTING 8" SEWER AND REPLACE WITH PROPOSED 8" SEWER

LEGEND

PROPOSED PROJECT BOUNDARY

EXISTING SEWER LINE

PROPOSED SEWER LINE

N

0 120

FEET

FIGURE 2

EXISTING AND PROPOSED SEWER SYSTEM

FOX POINT FARMS

DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
(760) 438-4422

\\ARTIC\DWG\1080001\FPF_SWR_FIGURE-2_EX-PRO-SWR.DWG 05-27-20 10:34:59 LAYOUT: LAYOUT

APPENDIX P-2 OFF-SITE SEWER SYSTEM ANALYSIS

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OFF-SITE SEWER SYSTEM ANALYSIS FOR THE FOX POINT FARMS PROJECT IN THE CITY OF ENCINITAS

June 30, 2020

Prepared by:
Dexter Wilson Engineering, Inc.
2234 Faraday Avenue
Carlsbad, CA 92008
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Job No. 1080-001

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NATALIE J. FRASCHETTI, P.E.
STEVEN J. HENDERSON, P.E.

June 30, 2020 1080-001

Nolen Communities
1680 N. Coast Highway, #51
Encinitas, CA 92024

Attention: Sean Kilkenny, Project Manager

Subject: Off-Site Sewer System Analysis for the Fox Point Farms Project in the City of Encinitas

INTRODUCTION

This letter-report provides an analysis of the existing City of Encinitas sewer system which will serve the Fox Point Farms project. The analysis evaluates off-site gravity sewers, pump stations, and treatment facilities which will serve the Fox Point Farms project.

PROJECT OVERVIEW

The Fox Point Farms project is located in the City of Encinitas at the northwest corner of Quail Gardens Drive and Leucadia Boulevard. The property has been used as a plant nursery historically. Figure 1 presents a vicinity map showing the subject property in the context of the City's existing sewer system.

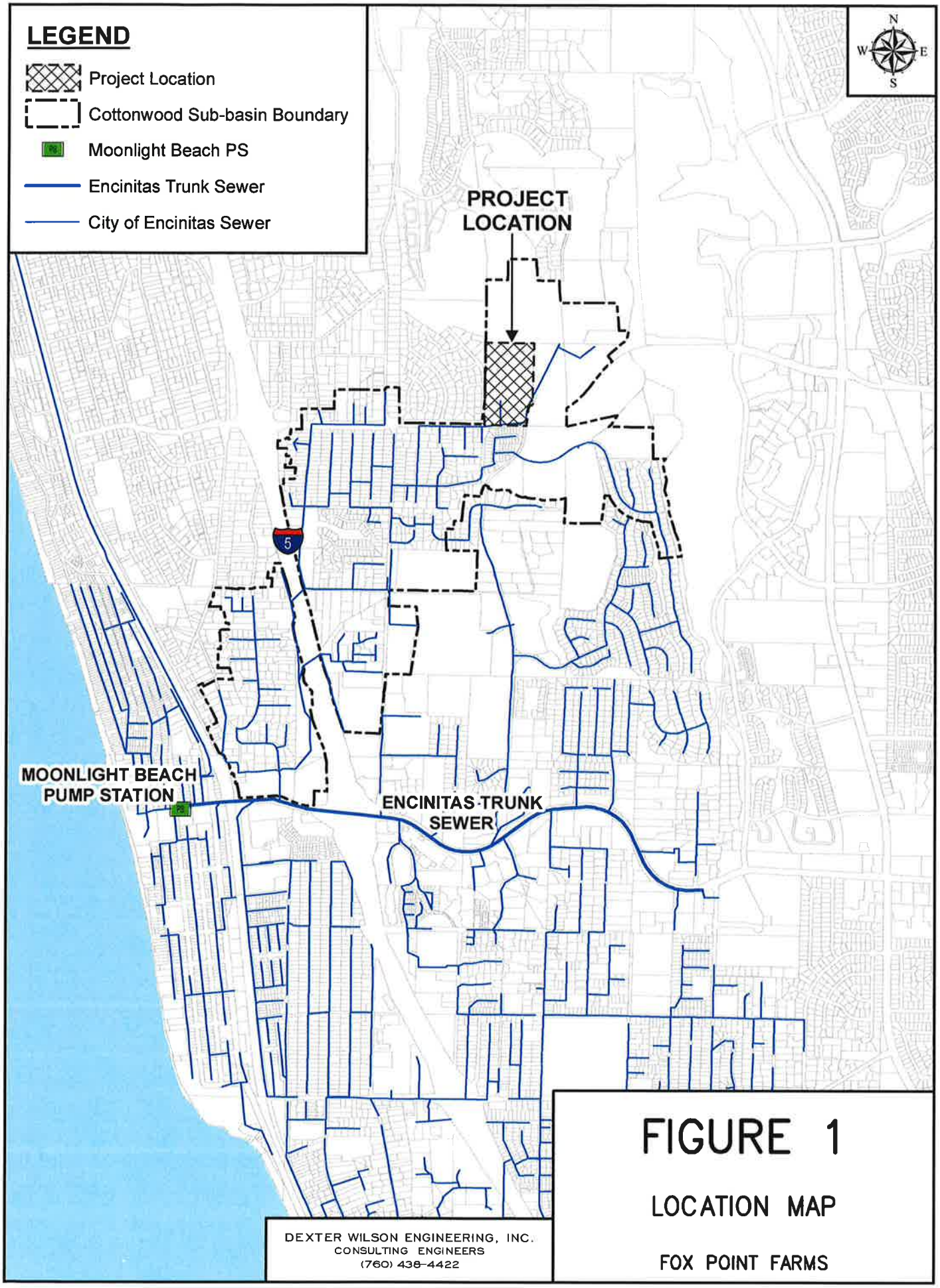


FIGURE 1

LOCATION MAP

FOX POINT FARMS

DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
(760) 438-4422

Date Saved: 7/1/2020 9:34:30 AM
Document Path: \\artic\GIS\1080001\$Figures\2020-06-24_Figure 1 Location Map.mxd

CITY OF ENCINITAS SEWER SYSTEM

The City of Encinitas Public Works Department oversees the Encinitas Sanitary Division and the Cardiff Sanitary Division of the City of Encinitas' (City) sewer system. The Encinitas Sanitary Division generally serves the northern portion of the City's sewer service area, while the Cardiff Sanitary Division serves the southern and eastern portions of the City's sewer service area. The Leucadia Wastewater District provides sewer services within the City boundary as well.

The majority of the flow within the Encinitas Sanitary Division flows to the Encinitas Trunk Sewer in Encinitas Boulevard and then west to the Moonlight Beach Pump Station. The far western portion of the Encinitas Sanitary Division flows directly into the Moonlight Beach Pump Station. The Encinitas Trunk Sewer and Moonlight Beach Pump Station are both shown in Figure 1. The Fox Point Farms project is located within the drainage area of the Encinitas Trunk Sewer and the Moonlight Beach Pump Station.

The Encinitas Trunk Sewer begins west of Balour Drive as 8-inch and 12-inch sewer, flowing west along Encinitas Boulevard, and then transitioning to 15-inch at Cottonwood Creek Park prior to terminating at the Moonlight Beach Pump Station. There are multiple junctions along the Encinitas Trunk Sewer picking up areas north and south of Encinitas Boulevard.

At Cottonwood Creek Park, a 15-inch junction from the north ties in to the Encinitas Trunk Sewer, generally serving the areas east and west of the Interstate 5 freeway, west of Saxony Road, and north of Puebla Street. This sub-basin of the Encinitas Trunk Sewer will serve the Fox Point Farms project and is discussed throughout this report as the Cottonwood Sub-basin.

Note that the first three segments of the Encinitas Trunk Sewer downstream of the Cottonwood Sub-basin (segments 43, 44, and 45 in Attachment B) are identified as 12-inch diameter in some City information, and 15-inch in others. The diameter should be verified by the City. The remainder of the downstream Encinitas Trunk Sewer is 15-inch, transitioning to 18-inch at the Moonlight Beach Pump Station.

WASTEWATER FLOW RATES

The following sections describe existing wastewater flows, Fox Point Farms wastewater flows, and projected ultimate wastewater flows. The evaluation of these flows in the relevant City infrastructure components follows the presentation of wastewater flows.

Existing Wastewater Flows in the Encinitas Sanitary Division

The existing average dry weather flow (ADWF), peak dry weather flow (PDWF), and peak wet weather (PWWF) rates in the Encinitas Sanitary Division system are as provided in Table 1.

The City is in the process of updating its Sewer Master Plan and provided Existing ADWF and PDWF for our use in preparing this analysis as summarized below. ADWF for residential areas is based on SANDAG Series 13 Data (2020 Forecast). Non-residential flow rates are based on a 5-year average of water meter data with a percentage returned to sewer.

TABLE 1
SANITARY DIVISION EXISTING FLOW RATES ENCINITAS

Location	ADWF, mgd[1]	PDWF, mgd[1]	PWWF[2] Addition, mgd	PWWF, mgd[1]
Cottonwood Sub-basin	0.09	0.15	0.14	0.29
Encinitas Trunk Sewer	0.54	1.05	0.56	1.61
Moonlight Beach Pump Station	0.69	1.13	0.70	1.83

[1] Source: City of Encinitas Draft Sewer Master Plan Update via NV5 Model Transfer May 27, 2020.
[2] Source: City of Encinitas 2011 Sewer Master Plan.

Fox Point Farms Wastewater Flows

Table 2 presents the Average Dry Weather Flow (ADWF) and Peak Dry Weather Flow (PDWF) anticipated to be generated by the Fox Point Farms project in this analysis. Flow projections are based on the City's Sewer Master Plan plus the addition of a 16.6% factor of safety.

TABLE 2
FOX POINT FARMS AVERAGE DRY WEATHER FLOW

Land Use	Quantity[1]	ADWF Generation Rate[2]	ADWF, gpd
Multi-Family Residential	250 Units	175 gpd/unit	43,750
Recreation Center	10,000 SF	95 gpd/sq ft of building	950
Restaurant	3,500 SF	95 gpd/sq ft of building	333
Barn	3,000 SF	95 gpd/sq ft of building	285
Agricultural	5.5 Acres	0 gpd/ac	0
TOTAL			**45,318 gpd** **0.045 mgd**

[1] *Sewer System Analysis for the Fox Point Farms Project* dated March 20, 2020 prepared by Dexter Wilson Engineering, Inc.
[2] ADWF from 2011 Master Plan + 16.6% Factor of Safety.

Ultimate Wastewater Flows in the Encinitas Sanitary Division

Projections of ultimate wastewater flows are based on the addition of Fox Point Farms flows to existing flows as well as other planned future developments anticipated within the Encinitas Sanitary Division. Additional detail to support development of this table can be found in Attachment A.

TABLE 3
ENCINITAS SANITARY DIVISION ULTIMATE FLOW PROJECTIONS

Cottonwood Sub-basin	**Flow**	**% of Total Moonlight Beach PS Ultimate ADWF**
Existing ADWF	0.09 mgd	
Additional ADWF		
09. Echter Property (Fox Point Farms)	0.045 mgd	16.7%
AD31. Meyer Proposal	0.030 mgd	11.1%
Other	0.025 mgd	9.3%
Total	*0.100 mgd*	*37.0%*
Cottonwood Ultimate ADWF	***0.190 mgd***	
Encinitas Trunk Sewer	**Flow**	**% of Total Ultimate**
Existing ADWF	0.54 mgd	
Additional ADWF		
Cottonwood Sub-basin	0.100 mgd	37.0%
05. Encinitas Blvd & Quail Garden	0.021 mgd	7.8%
12. Sunshine Gardens	0.015 mgd	5.6%
AD2 (a, b, c). Baldwin & Sons	0.051 mgd	18.9%
Other	0.013 mgd	4.8%
Total	*0.200 mgd*	*74.1%*
Encinitas TS Ultimate ADWF	***0.740 mgd***	
Moonlight Beach Pump Station	**Flow**	**% of Total Ultimate**
Existing ADWF	0.690 mgd	
Additional ADWF		
Encinitas Trunk Sewer	0.200 mgd	74.1%
AD14. Harrison Sites	0.006 mgd	2.2%
Other	0.064 mgd	23.7%
Total	*0.270 mgd*	*100%*
Moonlight Beach PS Ultimate ADWF	***0.960 mgd***	

[1]Total Additional Ultimate ADWF is 0.27 mgd over Existing ADWF.

Summary of Wastewater Flows

Table 4 below summarizes the flows described above that are utilized in this analysis.

TABLE 4
SUMMARY OF ADWF, PDWF, AND PWWF FOR THE FOX POINT FARMS ANALYSIS

Location	Existing			Existing + Fox Point Farms			Ultimate		
	ADWF	PDWF	PWWF	ADWF	PDWF	PWWF	ADWF	PDWF	PWWF
Cottonwood Sub-basin	0.09	0.15	0.29	0.13	0.21	0.35	0.19	0.31	0.45
Encinitas Trunk Sewer	0.54	1.05	1.61	0.58	0.95	1.51	0.74	1.22	1.78
Moonlight Beach Pump Station	0.69	1.13	1.83	0.74 [1]	1.21	1.91	0.96 [2]	1.57	2.27

All flows in mgd.
[1]Fox Point Farms represents 6.1% of this flow.
[2]Fox Point Farms represents 4.6% of this flow.

OFF-SITE INFRASTRUCTURE FLOW EVALUATION

The following sections will describe Fox Point Farms impact to City facilities in the Existing and Ultimate conditions. Each of the following will be analyzed independently: Cottonwood Sub-basin, Encinitas Trunk Sewer, Moonlight Beach Pump Station, and downstream facilities.

For Peak Wet Weather Flow (PWWF), the current Sewer Master Plan PWWF of 0.7 mgd was distributed upstream into the basin based on pipeline length. This analysis follows the same methodology of the 2011 Sewer Master Plan. As such, 0.14 mgd is contributed by the Cottonwood Sub-basin in both the 2011 Sewer Master Plan and this analysis as well.

The 2011 Sewer Master Plan identified the need for replacement when the maximum depth to diameter ratio (d/D) exceeds 0.90 under PWWF conditions. Because the 2011 Sewer Master Plan focused primarily on the downstream, regional Encinitas Trunk Sewer, it is acceptable, and a common public agency practice, to utilize a d/D replacement criteria of 0.75

during PWWF for the upstream local gravity sewer analysis. As such, for this analysis, replacement criteria are set as outlined in Table 5 below.

TABLE 5
DEPTH TO DIAMETER (d/D) REPLACEMENT CRITERIA

Pipeline Size	Flow Condition	
	Peak Dry Weather Flow (PDWF)	Peak Wet Weather Flow (PWWF)
≤ 12 inch	0.50	0.75
> 12 inch	0.75	0.90

Cottonwood Sub-basin Analysis

A computerized hydraulic model was prepared to evaluate the impact of the addition of Fox Point Farms wastewater flows to the existing gravity sewer system from the project site through the Cottonwood Sub-basin to determine if existing pipelines require capacity upgrades when comparing projected flows to replacement criteria. The hydraulic model was loaded with Existing and Ultimate average and peak dry and wet wastewater flows.

The maximum ratio of depth to diameter (d/D) under Existing PDWF is 0.328 and the maximum d/D under Existing PWWF is 0.421, therefore, sufficient capacity exists.

With the addition of the Fox Point Farms project to Existing PDWF, the maximum d/D is 0.436 and the maximum d/D under PWWF is 0.572. Therefore, sufficient capacity exists in the existing system to serve the Fox Point Farms project.

Under the Ultimate PDWF condition (including the Fox Point Farms project and others), the maximum d/D is 0.517 and the maximum d/D under PWWF is 0.654. The d/D exceeds the PDWF replacement criteria in one 8-inch pipeline stretch (segment 31 in Attachment B). Note that the exceedance in this stretch is 0.517 in comparison to the replacement criteria of 0.5; an exceedance of less than 5%. The City could address this in several ways. First, they could accept the exceedance since sufficient capacity exists under wet weather conditions.

Second, because the exceedance is minimal and occurs near Ultimate buildout of the sub-basin, actual flows could be monitored to determine if the projected flows do in fact materialize and increase as projected. Third, replacement of the pipeline would be added to the City's capital improvement program and paid for by a combination of existing users' sewer service charges and future users' fair share of connection fees.

Detailed results of the hydraulic analysis are provided in Attachment B.

Encinitas Trunk Sewer Analysis

The hydraulic analyses determine that the maximum d/D under Existing PDWF is 0.533 and the maximum d/D under PWWF is 0.764; therefore, sufficient capacity exists.

With the addition of Fox Point Farms Project to Existing PDWF, the maximum d/D is 0.560 and the maximum under PWWF is 0.800; therefore, sufficient capacity exists.

Under the Ultimate PDWF condition, (including the Fox Point Farms project and others), the maximum d/D is 0.649. The maximum d/D under PWWF exceeds capacity in two stretches of 12-inch pipeline in Encinitas Boulevard, west of where the Cottonwood Sub-basin connects to the Encinitas Trunk Sewer (segments 43 and 44 in Attachment B). Note that the size of these two pipeline stretches (and a third segment 45) should be confirmed as City documents/data conflict. If the pipelines are confirmed to be 15-inch, as some sources indicate, the maximum d/D in the Encinitas Trunk Sewer would be 0.450 under PDWF condition and 0.571 under PWWF condition. Outside of these two pipeline stretches, the maximum PWWF d/D is 0.748, and are below the maximum d/D for replacement.

If the 12-inch piping is confirmed to be 12-inch, the City could address this in several ways. The City could work to mitigate the inflow and infiltration coming into this basin with the installation of flow domes. These devices, placed underneath manhole lids, keep surface/street rainwater flows from entering the sanitary sewer. The City could also implement an active inflow and infiltration program by conducting flow monitoring smoke testing to further reduce inflow. These steps in concert with additional flow monitoring to determine the appropriate time to replace the pipeline. Lastly, as a final option, replacement of the pipeline would be added to the City's capital improvement program and paid for by a

combination of existing users' sewer service charges and future users' fair share of connection fees. Note that in the event replacement of segments 43 and 44 are necessary, these stretches of sewer appear to be within the existing Encinitas Boulevard ROW, and any construction associated with replacement thereto would be temporary and would be performed in accordance with an approved Improvement Plan including implementation of all BMPs, including a SWPPP, and a Traffic Control Plan.

Moonlight Beach Pump Station Analysis

Flows from the Encinitas Trunk Sewer terminate at the Moonlight Beach Pump Station, located at the intersection of "B" street (western terminus of Encinitas Boulevard) and Third Street. Per the 2011 Master Plan, the existing pump station consists of three, 60 hp pumps, with variable speed motors, each capable of pumping 1,000 gpm. The station has a duty pumping capacity of 2,000 gpm (2.9 mgd). The station's emergency storage basin is 180,000 gallons and was sized to provide storage for two hours based on peak ultimate flow conditions.

The 2011 Master Plan identified improvements for the pump station; however, none of the improvements were capacity related.

Existing Flows. As described previously, the City's determination of Existing ADWF at the station is 0.69 mgd and the estimated Existing PWWF is 1.83 mgd. At a capacity of 2.9 mgd, the existing Moonlight Beach Pump Station is sufficient to accommodate Existing flows.

Existing Flows Plus Fox Point Farms. Based on Existing flow rates and those anticipated in the Fox Point Farms project, the projected PWWF is anticipated to be 1.91 mgd. At a capacity of 2.9 mgd, the existing Moonlight Beach Pump Station is sufficient to accommodate Existing flows plus those anticipated to be generated by the Fox Point Farms project.

Ultimate Flows. Based on Existing flow rates, those anticipated by the Fox Point Farms project, and anticipated Ultimate flows, the projected PWWF is anticipated to be 2.27 mgd. At a capacity of 2.9 mgd, the existing Moonlight Beach Pump Station is sufficient to accommodate ultimate buildout peak wet weather flows.

Sean Kilkenny
June 30, 2020

Analysis of Facilities Downstream of the Moonlight Beach Pump Station

The Moonlight Beach Pump Station 14-inch PVC forcemain discharges approximately 13,800 feet north into the Batiquitos Influent Gravity Sewer at the intersection of Highway 101 and La Costa Avenue, just upstream of the Bataquitos Pump Station (which is jointly owned by the City of Encinitas and Leucadia Wastewater District). The Leucadia Wastewater District's Leucadia Pump Station forcemains discharge to the Batiquitos Gravity Sewer. The Batiquitos Gravity Sewer discharges to the Batiquitos Pump Station wet well where flow combines with other Leucadia Wastewater District flows. City of Encinitas and Leucadia Wastewater District flows are then pumped via two forcemains to the Lanikai Gravity Sewer (jointly owned by the City of Encinitas and Leucadia Wastewater District) and Occidental Gravity Sewer (jointly owned by the City of Encinitas, Leucadia Wastewater District, and City of Carlsbad) prior to treatment at the Encina Water Pollution Control Facility.

Because sufficient capacity exists within the existing Moonlight Beach Pump Station to serve the Fox Point Farms project under Existing and Ultimate conditions, sufficient capacity exists in the downstream gravity sewer conveyance and treatment facilities described above, and as documented in the 2011 Sewer Master Plan and the Leucadia Wastewater District's 2018 Asset Management Plan Update.

Dexter Wilson Engineering, Inc.

Natalie Fraschetti, P.E.

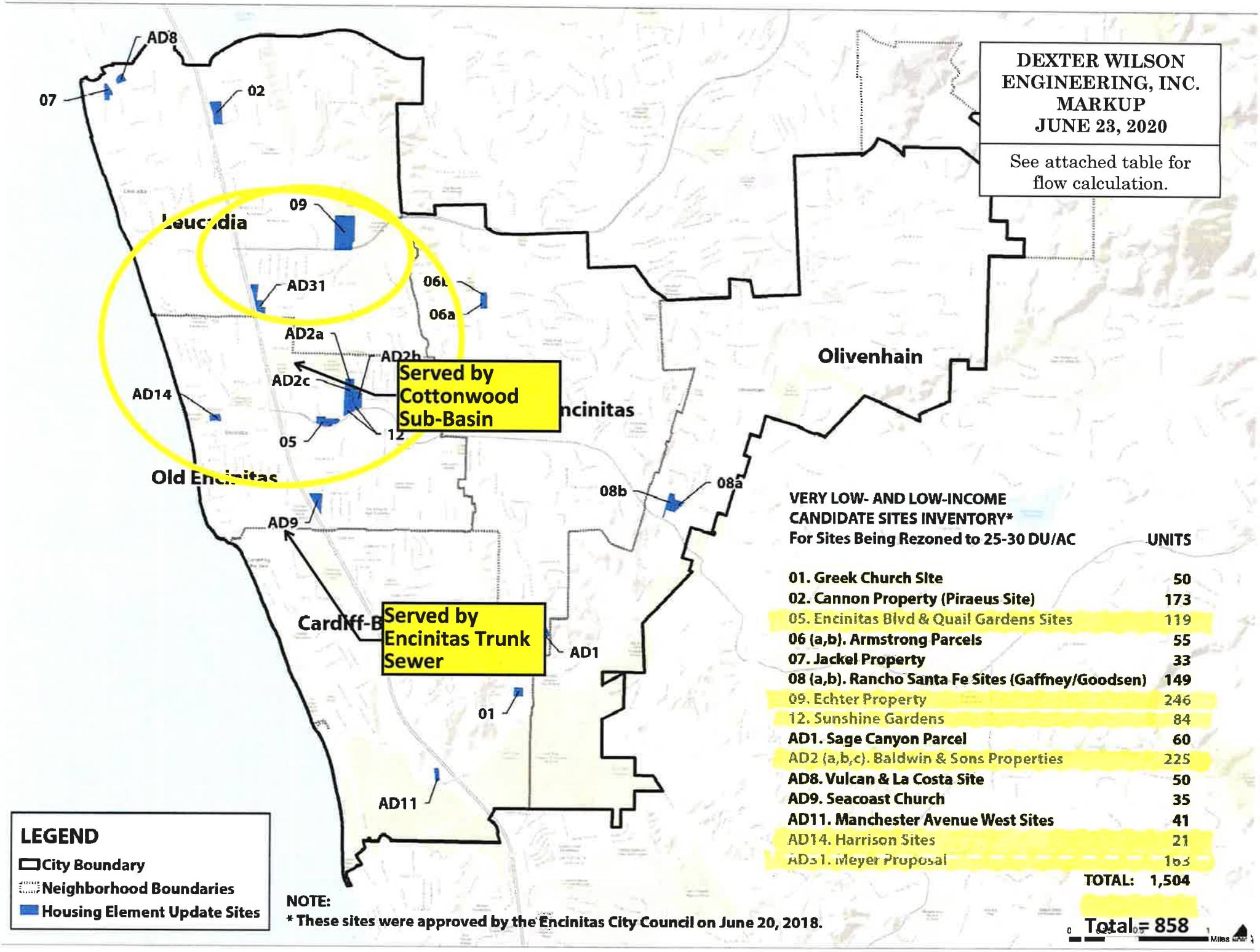


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Attachments

ATTACHMENT A

CITY HOUSING ELEMENT HOME SITES


DEXTER WILSON ENGINEERING, INC.
MARKUP
JUNE 23, 2020
See attached table for flow calculation.
AD8
07
02
09
AD31
06b
06a
AD2a
AD2b
AD2c
AD14
05
12
Served by Cottonwood Sub-Basin
Olivenhain
08b
08a
AD9
Served by Encinitas Trunk Sewer
AD1
01
AD11
VERY LOW- AND LOW-INCOME CANDIDATE SITES INVENTORY*
For Sites Being Rezoned to 25-30 DU/AC
UNITS
01. Greek Church Site 50
02. Cannon Property (Piraeus Site) 173
05. Encinitas Blvd & Quail Gardens Sites 119
06 (a,b). Armstrong Parcels 55
07. Jackel Property 33
08 (a,b). Rancho Santa Fe Sites (Gaffney/Goodsen) 149
09. Echter Property 246
12. Sunshine Gardens 84
AD1. Sage Canyon Parcel 60
AD2 (a,b,c). Baldwin & Sons Properties 225
AD8. Vulcan & La Costa Site 50
AD9. Seacoast Church 35
AD11. Manchester Avenue West Sites 41
AD14. Harrison Sites 21
AD31. Meyer Proposal 163
TOTAL: 1,504
Total = 858
LEGEND
City Boundary
Neighborhood Boundaries
Housing Element Update Sites
NOTE:
* These sites were approved by the Encinitas City Council on June 20, 2018.
Miles

CITY HOUSING ELEMENT ESTIMATES OF FLOW AND MODELED FLOW IN THE ENCINITAS SANITARY DIVISION			
Site	**Units**	**ADWF*, gpd**	**ADWF**, gpd**
05. Encinitas Blvd & Quail Gardens Sites	119	20,825	21,327
09. Echter Property (Fox Point Farms)	246	43,050	45,318
12. Sunshine Gardens	84	14,700	14,864
AD2 (a, b, c). Baldwin & Sons Properties	225	39,375	51,055
AD14. Harrison Sites	21	3,675	5,816
AD31. Meyer Proposal	163	28,525	30,375
TOTAL	**858**	**150,150**	**168,759**

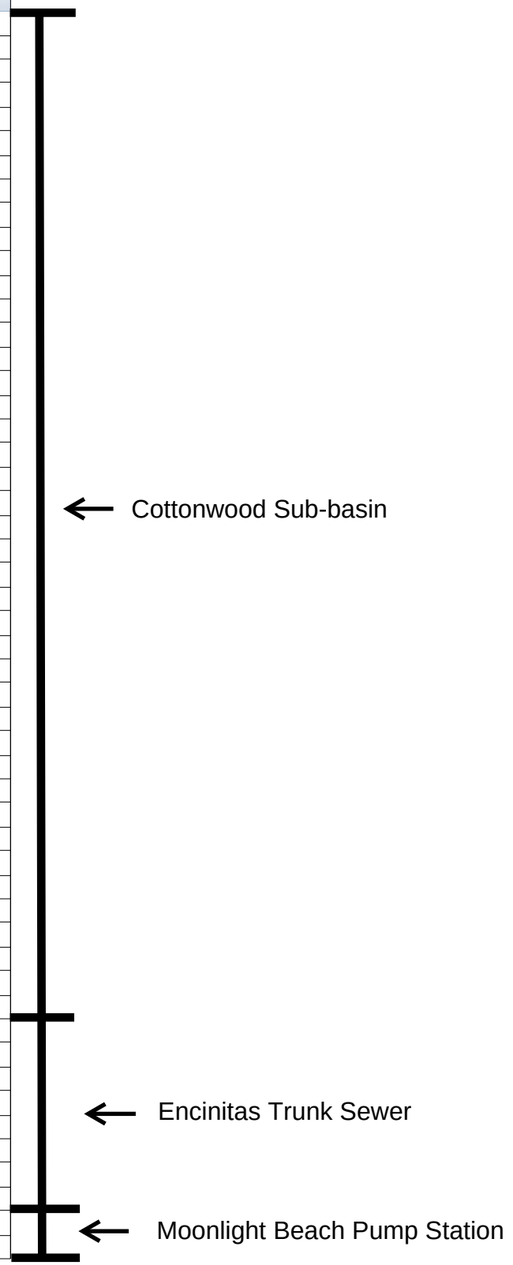
*Average Dry Weather Flow (ADWF) based on 175 gpd/EDU.
**Modeling ADWF.

ATTACHMENT B

MODELING RESULTS

Modeled Pipelines

		ID	From ID	To ID	Diameter (in)	Length (ft)	Slope
1	☐	14590SMAIN	3139SMANHL	2779SMANHL	8.000	311.990	0.007
2	☐	14593SMAIN	2779SMANHL	3137SMANHL	8.000	258.930	0.002
3	☐	16500SMAIN	3137SMANHL	3136SMANHL	8.000	30.018	0.049
4	☐	16499SMAIN	3136SMANHL	2788SMANHL	8.000	264.458	0.049
5	☐	13194SMAIN	2788SMANHL	2789SMANHL	8.000	400.706	0.090
6	☐	13195SMAIN	2789SMANHL	2785SMANHL	8.000	326.209	0.075
7	☐	13192SMAIN	2785SMANHL	2781SMANHL	8.000	350.000	0.004
8	☐	13189SMAIN	2781SMANHL	2782SMANHL	8.000	222.524	0.004
9	☐	13190SMAIN	2782SMANHL	2783SMANHL	8.000	168.700	0.067
10	☐	13191SMAIN	2783SMANHL	2784SMANHL	8.000	199.004	0.022
11	☐	16404SMAIN	2784SMANHL	3748SMANHL	8.000	135.528	0.053
12	☐	16405SMAIN	3748SMANHL	2808SMANHL	8.000	254.811	0.053
13	☐	13216SMAIN	2808SMANHL	2807SMANHL	8.000	290.115	0.004
14	☐	13778SMAIN	2807SMANHL	3206SMANHL	8.000	330.506	0.040
15	☐	13780SMAIN	3206SMANHL	3207SMANHL	8.000	250.720	0.006
16	☐	13777SMAIN	3207SMANHL	2812SMANHL	8.000	324.333	0.032
17	☐	13220SMAIN	2812SMANHL	2797SMANHL	8.000	186.368	0.007
18	☐	13204SMAIN	2797SMANHL	2796SMANHL	8.000	327.518	0.034
19	☐	13212SMAIN	2796SMANHL	2805SMANHL	8.000	208.900	0.006
20	☐	13213SMAIN	2805SMANHL	2802SMANHL	8.000	372.403	0.004
21	☐	13227SMAIN	2802SMANHL	2816SMANHL	8.000	328.278	0.030
22	☐	13228SMAIN	2816SMANHL	2817SMANHL	8.000	351.153	0.004
23	☐	13725SMAIN	2817SMANHL	3168SMANHL	8.000	233.170	0.004
24	☐	13724SMAIN	3168SMANHL	3167SMANHL	8.000	256.730	0.008
25	☐	13723SMAIN	3167SMANHL	3166SMANHL	8.000	135.370	0.025
26	☐	13734SMAIN	3166SMANHL	3176SMANHL	8.000	295.713	0.040
27	☐	13733SMAIN	3176SMANHL	3175SMANHL	8.000	259.780	0.039
28	☐	13732SMAIN	3175SMANHL	3174SMANHL	8.000	105.092	0.005
29	☐	13731SMAIN	3174SMANHL	3173SMANHL	8.000	131.730	0.004
30	☐	13730SMAIN	3173SMANHL	3172SMANHL	8.000	175.000	0.056
31	☐	13738SMAIN	3172SMANHL	3177SMANHL	8.000	584.810	0.003
32	☐	13739SMAIN	3177SMANHL	3178SMANHL	10.000	263.971	0.002
33	☐	13740SMAIN	3178SMANHL	3179SMANHL	10.000	231.317	0.002
34	☐	13741SMAIN	3179SMANHL	3180SMANHL	10.000	127.167	0.003
35	☐	13742SMAIN	3180SMANHL	3181SMANHL	10.000	314.388	0.013
36	☐	13743SMAIN	3181SMANHL	3183SMANHL	10.000	185.900	0.110
37	☐	13744SMAIN	3183SMANHL	3184SMANHL	10.000	371.642	0.020
38	☐	13745SMAIN	3184SMANHL	3185SMANHL	10.000	186.900	0.003
39	☐	14102SMAIN	3185SMANHL	2739SMANHL	10.000	76.817	0.011
40	☐	16398SMAIN	2739SMANHL	3747SMANHL	15.000	101.935	0.018
41	☐	16399SMAIN	3747SMANHL	2895SMANHL	15.000	338.183	0.018
42	☐	14164SMAIN	2895SMANHL	2894SMANHL	15.000	32.862	0.007
43	☐	14162SMAIN	2894SMANHL	3279SMANHL	12.000	85.341	0.004
44	☐	14115SMAIN	3279SMANHL	3278SMANHL	12.000	295.132	0.003
45	☐	14114SMAIN	3278SMANHL	3277SMANHL	12.000	350.847	0.004
46	☐	16395SMAIN	3277SMANHL	3746SMANHL	15.000	204.334	0.036
47	☐	16396SMAIN	3746SMANHL	3281SMANHL	15.000	205.686	0.036
48	☐	16401SMAIN	3281SMANHL	2698SMANHL	15.000	62.264	0.006
49	☐	12958SMAIN	2698SMANHL	2702SMANHL	15.000	294.879	0.064
50	☐	16402SMAIN	2702SMANHL	3285SMANHL	15.000	55.011	0.228
51	☐	18428SMAIN	3285SMANHL	4046SMANHL	18.000	26.150	0.012
52	☐	18429SMAIN	4046SMANHL	STOR_10	18.000	24.345	0.129



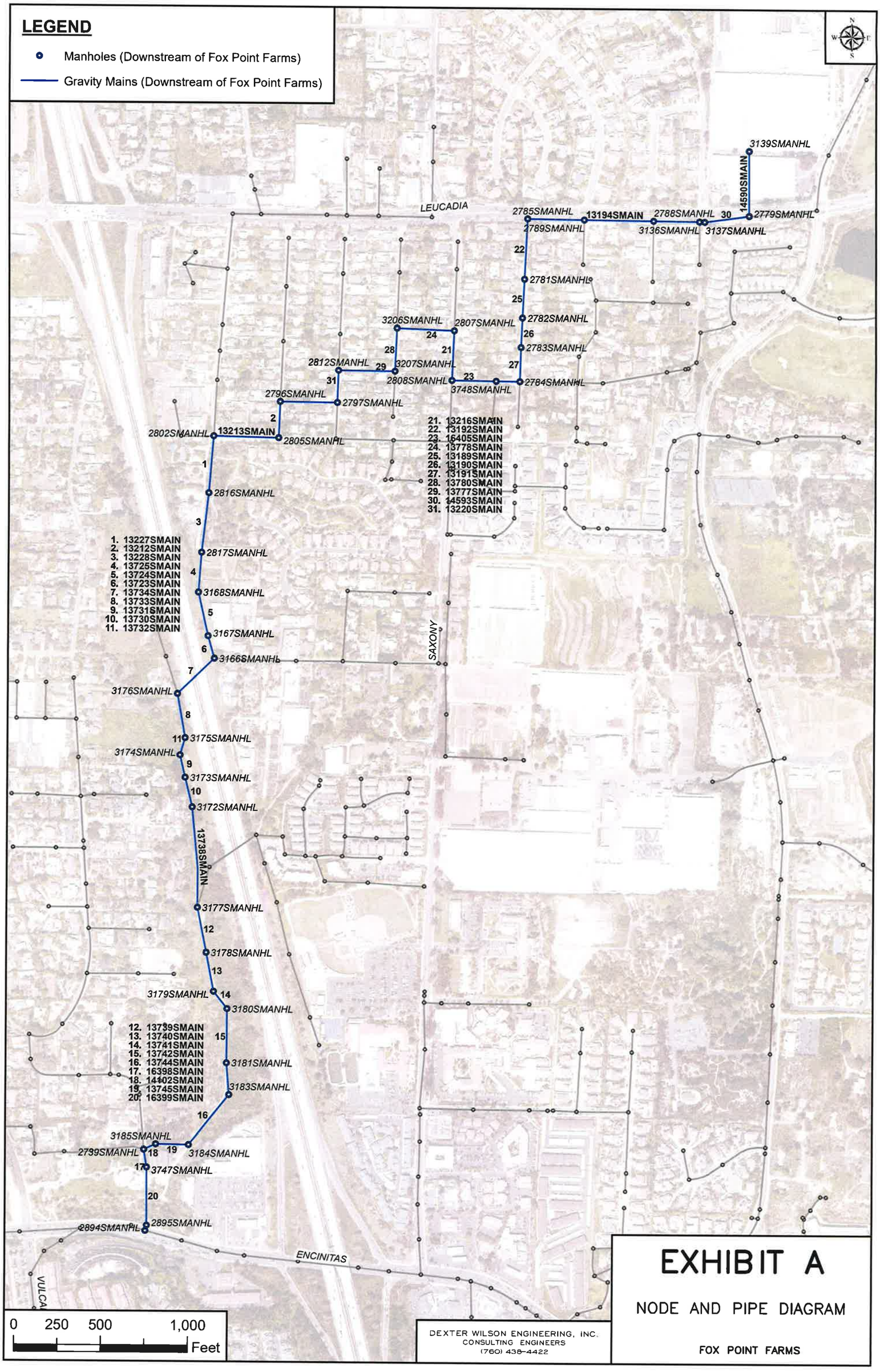
Manhole Modeling Data - Ultimate Dry Weather

		ID (Char)	DIAMETER (Num)	RIM_ELEV (Num)	LOAD1 (Num)	TYPE1 (Num)	PATTERN1 (Char)
1	☐	2698SMANHL	48.000	42.560	0.003	1: Peakable Base	MOONLIGHTWEEKEND
2	☐	2702SMANHL	48.000	22.900	0.002	1: Peakable Base	MOONLIGHTWEEKEND
3	☐	2739SMANHL	48.000	66.880	0.000	1: Peakable Base	MOONLIGHTWEEKEND
4	☐	2779SMANHL	60.000	314.400	0.000	1: Peakable Base	MOONLIGHTWEEKEND
5	☐	2781SMANHL	48.000	241.500	0.000	1: Peakable Base	MOONLIGHTWEEKEND
6	☐	2782SMANHL	48.000	233.410	0.000	1: Peakable Base	MOONLIGHTWEEKEND
7	☐	2783SMANHL	48.000	247.100	0.000	1: Peakable Base	MOONLIGHTWEEKEND
8	☐	2784SMANHL	48.000	217.990	0.000	1: Peakable Base	MOONLIGHTWEEKEND
9	☐	2785SMANHL	48.000	233.000	0.000	1: Peakable Base	MOONLIGHTWEEKEND
10	☐	2788SMANHL	60.000	297.516	0.000	1: Peakable Base	MOONLIGHTWEEKEND
11	☐	2789SMANHL	60.000	260.060	0.000	1: Peakable Base	MOONLIGHTWEEKEND
12	☐	2796SMANHL	48.000	159.100	0.001	1: Peakable Base	MOONLIGHTWEEKEND
13	☐	2797SMANHL	48.000	173.350	0.000	1: Peakable Base	MOONLIGHTWEEKEND
14	☐	2802SMANHL	48.000	162.650	0.001	1: Peakable Base	MOONLIGHTWEEKEND
15	☐	2805SMANHL	48.000	160.190	0.001	1: Peakable Base	MOONLIGHTWEEKEND
16	☐	2807SMANHL	48.000	200.340	0.000	1: Peakable Base	MOONLIGHTWEEKEND
17	☐	2808SMANHL	48.000	195.300	0.000	1: Peakable Base	MOONLIGHTWEEKEND
18	☐	2812SMANHL	48.000	170.500	0.000	1: Peakable Base	MOONLIGHTWEEKEND
19	☐	2816SMANHL	48.000	145.950	0.002	1: Peakable Base	MOONLIGHTWEEKEND
20	☐	2817SMANHL	48.000	156.550	0.003	1: Peakable Base	MOONLIGHTWEEKEND
21	☐	2894SMANHL	60.000	66.830	0.001	1: Peakable Base	MOONLIGHTWEEKEND
22	☐	2895SMANHL	60.000	60.060	0.001	1: Peakable Base	MOONLIGHTWEEKEND
23	☐	3136SMANHL	60.000	309.390	0.000	1: Peakable Base	MOONLIGHTWEEKEND
24	☐	3137SMANHL	60.000	311.460	0.000	1: Peakable Base	MOONLIGHTWEEKEND
25	☐	3139SMANHL	60.000	317.450	0.070	1: Peakable Base	MOONLIGHTWEEKEND
26	☐	3166SMANHL	48.000	160.360	0.001	1: Peakable Base	MOONLIGHTWEEKEND
27	☐	3167SMANHL	48.000	153.973	0.046	1: Peakable Base	MOONLIGHTWEEKEND
28	☐	3168SMANHL	48.000	151.640	0.001	1: Peakable Base	MOONLIGHTWEEKEND
29	☐	3172SMANHL	48.000	108.960	0.000	1: Peakable Base	MOONLIGHTWEEKEND
30	☐	3173SMANHL	48.000	119.840	0.000	1: Peakable Base	MOONLIGHTWEEKEND
31	☐	3174SMANHL	48.000	116.940	0.000	1: Peakable Base	MOONLIGHTWEEKEND
32	☐	3175SMANHL	48.000	115.090	0.001	1: Peakable Base	MOONLIGHTWEEKEND
33	☐	3176SMANHL	48.000	128.300	0.000	1: Peakable Base	MOONLIGHTWEEKEND
34	☐	3177SMANHL	48.000	106.880	0.000	1: Peakable Base	MOONLIGHTWEEKEND
35	☐	3178SMANHL	48.000	108.230	0.000	1: Peakable Base	MOONLIGHTWEEKEND
36	☐	3179SMANHL	48.000	109.680	0.000	1: Peakable Base	MOONLIGHTWEEKEND
37	☐	3180SMANHL	48.000	100.330	0.000	1: Peakable Base	MOONLIGHTWEEKEND
38	☐	3181SMANHL	48.000	96.130	0.000	1: Peakable Base	MOONLIGHTWEEKEND
39	☐	3183SMANHL	48.000	79.680	0.001	1: Peakable Base	MOONLIGHTWEEKEND
40	☐	3184SMANHL	48.000	66.190	0.002	1: Peakable Base	MOONLIGHTWEEKEND
41	☐	3185SMANHL	48.000	65.720	0.000	1: Peakable Base	MOONLIGHTWEEKEND
42	☐	3206SMANHL	48.000	182.000	0.001	1: Peakable Base	MOONLIGHTWEEKEND
43	☐	3207SMANHL	48.000	181.400	0.001	1: Peakable Base	MOONLIGHTWEEKEND
44	☐	3277SMANHL	60.000	58.190	0.002	1: Peakable Base	MOONLIGHTWEEKEND
45	☐	3278SMANHL	60.000	69.460	0.002	1: Peakable Base	MOONLIGHTWEEKEND
46	☐	3279SMANHL	48.000	70.470	0.001	1: Peakable Base	MOONLIGHTWEEKEND
47	☐	3281SMANHL	48.000	45.416	0.002	1: Peakable Base	MOONLIGHTWEEKEND
48	☐	3285SMANHL	48.000	31.690	0.000	1: Peakable Base	MOONLIGHTWEEKEND
49	☐	3746SMANHL	6.000	47.520	0.001	1: Peakable Base	MOONLIGHTWEEKEND
50	☐	3747SMANHL	60.000	69.080	0.001	1: Peakable Base	MOONLIGHTWEEKEND
51	☐	3748SMANHL	6.000	214.950	0.000	1: Peakable Base	MOONLIGHTWEEKEND
52	☐	4046SMANHL	60.000	22.250	0.001	1: Peakable Base	MOONLIGHTWEEKEND
53	☐	STOR_10	1,000,000,000.000	3.740	0.000	1: Peakable Base	MOONLIGHTWEEKEND

Manhole Modeling Data - Ultimate Wet Weather

		ID (Char)	DIAMETER (Num)	RIM_ELEV (Num)	LOAD1 (Num)	TYPE1 (Num)	PATTERN1 (Char)	LOAD2 (Num)	TYPE2 (Num)	PATTERN2 (Char)
1	☐	2698SMANHL	48.000	42.560	0.003	1: Peakable Base	MOONLIGHTWEEKEND	0.015	0: Unpeakable	
2	☐	2702SMANHL	48.000	22.900	0.002	1: Peakable Base	MOONLIGHTWEEKEND			
3	☐	2739SMANHL	48.000	66.880	0.000	1: Peakable Base	MOONLIGHTWEEKEND	0.040	0: Unpeakable	
4	☐	2779SMANHL	60.000	314.400	0.000	1: Peakable Base	MOONLIGHTWEEKEND	0.024	0: Unpeakable	
5	☐	2781SMANHL	48.000	241.500	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
6	☐	2782SMANHL	48.000	233.410	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
7	☐	2783SMANHL	48.000	247.100	0.000	1: Peakable Base	MOONLIGHTWEEKEND	0.000	0: Unpeakable	
8	☐	2784SMANHL	48.000	217.990	0.000	1: Peakable Base	MOONLIGHTWEEKEND	0.055	0: Unpeakable	
9	☐	2785SMANHL	48.000	233.000	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
10	☐	2788SMANHL	60.000	297.516	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
11	☐	2789SMANHL	60.000	260.060	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
12	☐	2796SMANHL	48.000	159.100	0.001	1: Peakable Base	MOONLIGHTWEEKEND			
13	☐	2797SMANHL	48.000	173.350	0.000	1: Peakable Base	MOONLIGHTWEEKEND	0.022	0: Unpeakable	
14	☐	2802SMANHL	48.000	162.650	0.001	1: Peakable Base	MOONLIGHTWEEKEND	0.024	0: Unpeakable	
15	☐	2805SMANHL	48.000	160.190	0.001	1: Peakable Base	MOONLIGHTWEEKEND			
16	☐	2807SMANHL	48.000	200.340	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
17	☐	2808SMANHL	48.000	195.300	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
18	☐	2812SMANHL	48.000	170.500	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
19	☐	2816SMANHL	48.000	145.950	0.002	1: Peakable Base	MOONLIGHTWEEKEND			
20	☐	2817SMANHL	48.000	156.550	0.003	1: Peakable Base	MOONLIGHTWEEKEND			
21	☐	2894SMANHL	60.000	66.830	0.001	1: Peakable Base	MOONLIGHTWEEKEND	0.480	0: Unpeakable	
22	☐	2895SMANHL	60.000	60.060	0.001	1: Peakable Base	MOONLIGHTWEEKEND			
23	☐	3136SMANHL	60.000	309.390	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
24	☐	3137SMANHL	60.000	311.460	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
25	☑	3139SMANHL	60.000	317.450	0.070	1: Peakable Base	MOONLIGHTWEEKEND	0.000	0: Unpeakable	
26	☐	3166SMANHL	48.000	160.360	0.001	1: Peakable Base	MOONLIGHTWEEKEND	0.024	0: Unpeakable	
27	☐	3167SMANHL	48.000	153.973	0.046	1: Peakable Base	MOONLIGHTWEEKEND			
28	☐	3168SMANHL	48.000	151.640	0.001	1: Peakable Base	MOONLIGHTWEEKEND			
29	☐	3172SMANHL	48.000	108.960	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
30	☐	3173SMANHL	48.000	119.840	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
31	☐	3174SMANHL	48.000	116.940	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
32	☐	3175SMANHL	48.000	115.090	0.001	1: Peakable Base	MOONLIGHTWEEKEND			
33	☐	3176SMANHL	48.000	128.300	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
34	☐	3177SMANHL	48.000	106.880	0.000	1: Peakable Base	MOONLIGHTWEEKEND	0.028	0: Unpeakable	
35	☐	3178SMANHL	48.000	108.230	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
36	☐	3179SMANHL	48.000	109.680	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
37	☐	3180SMANHL	48.000	100.330	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
38	☐	3181SMANHL	48.000	96.130	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
39	☐	3183SMANHL	48.000	79.680	0.001	1: Peakable Base	MOONLIGHTWEEKEND			
40	☐	3184SMANHL	48.000	66.190	0.002	1: Peakable Base	MOONLIGHTWEEKEND			
41	☐	3185SMANHL	48.000	65.720	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
42	☐	3206SMANHL	48.000	182.000	0.001	1: Peakable Base	MOONLIGHTWEEKEND			
43	☐	3207SMANHL	48.000	181.400	0.001	1: Peakable Base	MOONLIGHTWEEKEND			
44	☐	3277SMANHL	60.000	58.190	0.002	1: Peakable Base	MOONLIGHTWEEKEND			
45	☐	3278SMANHL	60.000	69.460	0.002	1: Peakable Base	MOONLIGHTWEEKEND	0.139	0: Unpeakable	
46	☐	3279SMANHL	48.000	70.470	0.001	1: Peakable Base	MOONLIGHTWEEKEND			
47	☐	3281SMANHL	48.000	45.416	0.002	1: Peakable Base	MOONLIGHTWEEKEND			
48	☐	3285SMANHL	48.000	31.690	0.000	1: Peakable Base	MOONLIGHTWEEKEND	0.217	0: Unpeakable	
49	☐	3746SMANHL	6.000	47.520	0.001	1: Peakable Base	MOONLIGHTWEEKEND	0.015	0: Unpeakable	
50	☐	3747SMANHL	60.000	69.080	0.001	1: Peakable Base	MOONLIGHTWEEKEND			
51	☐	3748SMANHL	6.000	214.950	0.000	1: Peakable Base	MOONLIGHTWEEKEND			
52	☐	4046SMANHL	60.000	22.250	0.001	1: Peakable Base	MOONLIGHTWEEKEND			
53	☐	STOR_10	1,000,000,000.000	3.740	0.000	1: Peakable Base	MOONLIGHTWEEKEND	0.000	0: Unpeakable	

DEXTER WILSON ENGINEERING INC.
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Existing Dry Weather EPS Results

	ID	From ID	To ID	Maximum Flow (cfs)	Maximum Flow Time (hour)	Maximum Adjusted Depth (ft)	Maximum Adjusted d/D	Maximum Adjusted Velocity (ft/s)	Maximum q/Q	Maximum Critical Depth (ft)
1	14590SMAIN	3139SMANHL	2779SMANHL	0.003	08:49 hr	0.046	0.069	0.008	0.003	0.023
2	14593SMAIN	2779SMANHL	3137SMANHL	0.012	09:09 hr	0.067	0.100	0.683	0.021	0.050
3	16500SMAIN	3137SMANHL	3136SMANHL	0.013	09:05 hr	0.033	0.050	1.953	0.005	0.050
4	16499SMAIN	3136SMANHL	2788SMANHL	0.013	09:12 hr	0.033	0.050	1.951	0.005	0.051
5	13194SMAIN	2788SMANHL	2789SMANHL	0.013	09:12 hr	0.029	0.044	0.036	0.003	0.051
6	13195SMAIN	2789SMANHL	2785SMANHL	0.013	09:10 hr	0.044	0.067	0.035	0.004	0.050
7	13192SMAIN	2785SMANHL	2781SMANHL	0.013	09:18 hr	0.060	0.090	0.817	0.017	0.051
8	13189SMAIN	2781SMANHL	2782SMANHL	0.013	09:19 hr	0.060	0.090	0.816	0.017	0.051
9	13190SMAIN	2782SMANHL	2783SMANHL	0.013	09:16 hr	0.035	0.053	0.036	0.004	0.051
10	13191SMAIN	2783SMANHL	2784SMANHL	0.013	09:18 hr	0.045	0.068	0.036	0.007	0.051
11	16404SMAIN	2784SMANHL	3748SMANHL	0.035	09:23 hr	0.052	0.078	2.707	0.013	0.084
12	16405SMAIN	3748SMANHL	2808SMANHL	0.035	09:22 hr	0.074	0.111	0.096	0.012	0.084
13	13216SMAIN	2808SMANHL	2807SMANHL	0.035	09:22 hr	0.098	0.146	1.106	0.046	0.085
14	13778SMAIN	2807SMANHL	3206SMANHL	0.037	09:24 hr	0.073	0.110	0.102	0.015	0.087
15	13780SMAIN	3206SMANHL	3207SMANHL	0.039	09:24 hr	0.091	0.137	1.343	0.040	0.089
16	13777SMAIN	3207SMANHL	2812SMANHL	0.041	09:28 hr	0.078	0.117	0.113	0.019	0.091
17	13220SMAIN	2812SMANHL	2797SMANHL	0.044	09:26 hr	0.095	0.143	1.412	0.044	0.094
18	13204SMAIN	2797SMANHL	2796SMANHL	0.049	09:26 hr	0.086	0.129	0.137	0.022	0.100
19	13212SMAIN	2796SMANHL	2805SMANHL	0.053	09:27 hr	0.112	0.168	0.148	0.055	0.104
20	13213SMAIN	2805SMANHL	2802SMANHL	0.055	09:30 hr	0.120	0.180	1.277	0.070	0.106
21	13227SMAIN	2802SMANHL	2816SMANHL	0.085	09:21 hr	0.121	0.182	0.239	0.041	0.133
22	13228SMAIN	2816SMANHL	2817SMANHL	0.088	09:20 hr	0.153	0.229	0.247	0.115	0.135
23	13725SMAIN	2817SMANHL	3168SMANHL	0.091	09:22 hr	0.156	0.235	1.456	0.121	0.137
24	13724SMAIN	3168SMANHL	3167SMANHL	0.093	09:21 hr	0.133	0.200	1.854	0.087	0.138
25	13723SMAIN	3167SMANHL	3166SMANHL	0.093	09:25 hr	0.101	0.151	2.300	0.049	0.139
26	13734SMAIN	3166SMANHL	3176SMANHL	0.122	09:20 hr	0.103	0.155	0.343	0.050	0.159
27	13733SMAIN	3176SMANHL	3175SMANHL	0.133	09:17 hr	0.140	0.210	0.372	0.055	0.166
28	13732SMAIN	3175SMANHL	3174SMANHL	0.134	09:17 hr	0.181	0.271	0.378	0.153	0.168
29	13731SMAIN	3174SMANHL	3173SMANHL	0.135	09:19 hr	0.189	0.283	1.646	0.175	0.168
30	13730SMAIN	3173SMANHL	3172SMANHL	0.135	09:18 hr	0.153	0.229	0.380	0.047	0.168
31	13738SMAIN	3172SMANHL	3177SMANHL	0.136	09:25 hr	0.219	0.328	0.383	0.215	0.169
32	13739SMAIN	3177SMANHL	3178SMANHL	0.186	09:24 hr	0.233	0.280	1.218	0.171	0.186
33	13740SMAIN	3178SMANHL	3179SMANHL	0.186	09:25 hr	0.235	0.282	1.465	0.174	0.186
34	13741SMAIN	3179SMANHL	3180SMANHL	0.187	09:27 hr	0.227	0.272	1.545	0.162	0.186
35	13742SMAIN	3180SMANHL	3181SMANHL	0.187	09:28 hr	0.153	0.184	2.706	0.074	0.186
36	13743SMAIN	3181SMANHL	3183SMANHL	0.187	09:28 hr	0.115	0.138	0.337	0.026	0.187
37	13744SMAIN	3183SMANHL	3184SMANHL	0.189	09:30 hr	0.186	0.223	0.341	0.061	0.188
38	13745SMAIN	3184SMANHL	3185SMANHL	0.193	09:31 hr	0.236	0.283	1.511	0.175	0.189
39	14102SMAIN	3185SMANHL	2739SMANHL	0.193	09:32 hr	0.163	0.196	2.547	0.084	0.189
40	16398SMAIN	2739SMANHL	3747SMANHL	0.214	09:30 hr	0.136	0.109	2.714	0.025	0.178
41	16399SMAIN	3747SMANHL	2895SMANHL	0.215	09:32 hr	0.167	0.133	0.173	0.025	0.179
42	14164SMAIN	2895SMANHL	2894SMANHL	0.216	09:33 hr	0.314	0.251	0.173	0.040	0.180
43	14162SMAIN	2894SMANHL	3279SMANHL	0.913	09:24 hr	0.442	0.442	1.128	0.394	0.401
44	14115SMAIN	3279SMANHL	3278SMANHL	0.915	09:27 hr	0.492	0.492	1.129	0.438	0.401
45	14114SMAIN	3278SMANHL	3277SMANHL	1.242	09:33 hr	0.533	0.533	2.909	0.556	0.470
46	16395SMAIN	3277SMANHL	3746SMANHL	1.244	09:34 hr	0.269	0.215	1.001	0.101	0.440
47	16396SMAIN	3746SMANHL	3281SMANHL	1.264	09:34 hr	0.345	0.276	1.017	0.103	0.444
48	16401SMAIN	3281SMANHL	2698SMANHL	1.267	09:34 hr	0.423	0.339	3.449	0.247	0.444
49	12958SMAIN	2698SMANHL	2702SMANHL	1.294	09:35 hr	0.237	0.190	7.956	0.079	0.449
50	16402SMAIN	2702SMANHL	3285SMANHL	1.316	09:34 hr	0.279	0.223	1.059	0.043	0.453
51	18428SMAIN	3285SMANHL	4046SMANHL	1.699	09:34 hr	0.387	0.258	4.682	0.146	0.490
52	18429SMAIN	4046SMANHL	STOR_10	1.700	09:34 hr	0.217	0.144	10.756	0.045	0.490

Existing Wet Weather EPS Results

		ID	From ID	To ID	Maximum Flow (cfs)	Maximum Flow Time (hour)	Maximum Adjusted Depth (ft)	Maximum Adjusted d/D	Maximum Adjusted Velocity (ft/s)	Maximum q/Q
1	☐	14590SMAIN	3139SMANHL	2779SMANHL	0.003	08:49 hr	0.068	0.102	0.008	0.003
2	☐	14593SMAIN	2779SMANHL	3137SMANHL	0.036	09:09 hr	0.112	0.167	0.945	0.061
3	☐	16500SMAIN	3137SMANHL	3136SMANHL	0.037	09:05 hr	0.054	0.082	2.707	0.014
4	☐	16499SMAIN	3136SMANHL	2788SMANHL	0.037	09:12 hr	0.055	0.082	2.705	0.014
5	☐	13194SMAIN	2788SMANHL	2789SMANHL	0.037	09:12 hr	0.048	0.072	0.104	0.010
6	☐	13195SMAIN	2789SMANHL	2785SMANHL	0.037	09:14 hr	0.074	0.111	0.104	0.011
7	☐	13192SMAIN	2785SMANHL	2781SMANHL	0.037	09:18 hr	0.100	0.149	1.127	0.048
8	☐	13189SMAIN	2781SMANHL	2782SMANHL	0.037	09:19 hr	0.099	0.149	1.127	0.048
9	☐	13190SMAIN	2782SMANHL	2783SMANHL	0.037	09:16 hr	0.058	0.087	0.104	0.012
10	☐	13191SMAIN	2783SMANHL	2784SMANHL	0.037	09:18 hr	0.079	0.118	0.104	0.020
11	☐	16404SMAIN	2784SMANHL	3748SMANHL	0.114	09:23 hr	0.092	0.138	3.898	0.041
12	☐	16405SMAIN	3748SMANHL	2808SMANHL	0.114	09:22 hr	0.132	0.198	0.322	0.041
13	☐	13216SMAIN	2808SMANHL	2807SMANHL	0.114	09:22 hr	0.174	0.261	1.572	0.149
14	☐	13778SMAIN	2807SMANHL	3206SMANHL	0.116	09:24 hr	0.127	0.191	0.328	0.048
15	☐	13780SMAIN	3206SMANHL	3207SMANHL	0.118	09:24 hr	0.157	0.236	1.873	0.122
16	☐	13777SMAIN	3207SMANHL	2812SMANHL	0.120	09:28 hr	0.132	0.197	0.339	0.055
17	☐	13220SMAIN	2812SMANHL	2797SMANHL	0.123	09:26 hr	0.158	0.237	1.927	0.124
18		13204SMAIN	2797SMANHL	2796SMANHL	0.150	09:26 hr	0.148	0.222	0.427	0.067
19	☐	13212SMAIN	2796SMANHL	2805SMANHL	0.154	09:27 hr	0.191	0.286	0.438	0.161
20	☐	13213SMAIN	2805SMANHL	2802SMANHL	0.156	09:30 hr	0.202	0.303	1.738	0.200
21	☐	13227SMAIN	2802SMANHL	2816SMANHL	0.210	09:21 hr	0.191	0.286	0.597	0.101
22	☐	13228SMAIN	2816SMANHL	2817SMANHL	0.213	09:20 hr	0.241	0.362	0.605	0.278
23	☐	13725SMAIN	2817SMANHL	3168SMANHL	0.216	09:22 hr	0.244	0.366	1.866	0.286
24	☐	13724SMAIN	3168SMANHL	3167SMANHL	0.218	09:21 hr	0.205	0.308	2.381	0.205
25	☐	13723SMAIN	3167SMANHL	3166SMANHL	0.218	09:25 hr	0.153	0.229	3.612	0.115
26	☐	13734SMAIN	3166SMANHL	3176SMANHL	0.271	09:20 hr	0.152	0.227	0.770	0.112
27	☐	13733SMAIN	3176SMANHL	3175SMANHL	0.282	09:17 hr	0.206	0.310	0.799	0.117
28	☐	13732SMAIN	3175SMANHL	3174SMANHL	0.283	09:17 hr	0.269	0.404	0.804	0.323
29	☐	13731SMAIN	3174SMANHL	3173SMANHL	0.284	09:19 hr	0.280	0.421	2.030	0.369
30	☐	13730SMAIN	3173SMANHL	3172SMANHL	0.284	09:18 hr	0.227	0.340	0.807	0.100
31	☐	13738SMAIN	3172SMANHL	3177SMANHL	0.285	09:25 hr	0.320	0.481	0.810	0.450
32	☐	13739SMAIN	3177SMANHL	3178SMANHL	0.363	09:24 hr	0.331	0.397	0.659	0.333
33	☐	13740SMAIN	3178SMANHL	3179SMANHL	0.363	09:25 hr	0.335	0.401	1.770	0.339
34	☐	13741SMAIN	3179SMANHL	3180SMANHL	0.364	09:27 hr	0.322	0.386	1.867	0.316
35	☐	13742SMAIN	3180SMANHL	3181SMANHL	0.364	09:28 hr	0.213	0.256	3.296	0.143
36	☐	13743SMAIN	3181SMANHL	3183SMANHL	0.364	09:28 hr	0.159	0.191	0.662	0.050
37	☐	13744SMAIN	3183SMANHL	3184SMANHL	0.366	09:30 hr	0.262	0.314	0.666	0.117
38	☐	13745SMAIN	3184SMANHL	3185SMANHL	0.370	09:31 hr	0.333	0.399	1.816	0.336
39	☐	14102SMAIN	3185SMANHL	2739SMANHL	0.370	09:32 hr	0.226	0.271	3.084	0.161
40	☐	16398SMAIN	2739SMANHL	3747SMANHL	0.431	09:30 hr	0.190	0.152	3.643	0.050
41	☐	16399SMAIN	3747SMANHL	2895SMANHL	0.432	09:32 hr	0.283	0.227	0.349	0.050
42	☐	14164SMAIN	2895SMANHL	2894SMANHL	0.433	09:33 hr	0.492	0.393	0.350	0.080
43	☐	14162SMAIN	2894SMANHL	3279SMANHL	1.610	09:24 hr	0.628	0.628	2.329	0.694
44	☐	14115SMAIN	3279SMANHL	3278SMANHL	1.612	09:27 hr	0.705	0.705	2.017	0.771
45	☐	14114SMAIN	3278SMANHL	3277SMANHL	2.078	09:33 hr	0.764	0.764	3.226	0.931
46	☐	16395SMAIN	3277SMANHL	3746SMANHL	2.080	09:34 hr	0.348	0.279	1.682	0.170
47	☐	16396SMAIN	3746SMANHL	3281SMANHL	2.115	09:34 hr	0.454	0.363	1.711	0.172
48	☐	16401SMAIN	3281SMANHL	2698SMANHL	2.118	09:34 hr	0.560	0.448	3.970	0.413
49		12958SMAIN	2698SMANHL	2702SMANHL	2.160	09:35 hr	0.306	0.245	9.254	0.131
50	☐	16402SMAIN	2702SMANHL	3285SMANHL	2.182	09:34 hr	0.360	0.288	1.764	0.071
51	☐	18428SMAIN	3285SMANHL	4046SMANHL	2.782	09:34 hr	0.499	0.333	5.396	0.239
52	☐	18429SMAIN	4046SMANHL	STOR_10	2.783	09:34 hr	0.275	0.184	12.472	0.074

Existing plus Fox Point Dry Weather EPS Results

	ID	From ID	To ID	Maximum Flow (cfs)	Maximum Flow Time (hour)	Maximum Adjusted Depth (ft)	Maximum Adjusted d/D	Maximum Adjusted Velocity (ft/s)	Maximum q/Q
1	14590SMAIN	3139SMANHL	2779SMANHL	0.115	09:02 hr	0.179	0.269	0.327	0.117
2	14593SMAIN	2779SMANHL	3137SMANHL	0.124	09:04 hr	0.206	0.310	1.348	0.208
3	16500SMAIN	3137SMANHL	3136SMANHL	0.125	09:04 hr	0.098	0.147	3.904	0.046
4	16499SMAIN	3136SMANHL	2788SMANHL	0.125	09:05 hr	0.098	0.147	3.900	0.047
5	13194SMAIN	2788SMANHL	2789SMANHL	0.125	09:07 hr	0.086	0.129	0.352	0.034
6	13195SMAIN	2789SMANHL	2785SMANHL	0.125	09:07 hr	0.134	0.200	0.351	0.038
7	13192SMAIN	2785SMANHL	2781SMANHL	0.125	09:10 hr	0.182	0.273	1.605	0.163
8	13189SMAIN	2781SMANHL	2782SMANHL	0.125	09:13 hr	0.182	0.273	1.602	0.163
9	13190SMAIN	2782SMANHL	2783SMANHL	0.125	09:13 hr	0.103	0.155	0.346	0.040
10	13191SMAIN	2783SMANHL	2784SMANHL	0.125	09:14 hr	0.119	0.178	2.932	0.069
11	16404SMAIN	2784SMANHL	3748SMANHL	0.146	09:15 hr	0.104	0.156	4.172	0.053
12	16405SMAIN	3748SMANHL	2808SMANHL	0.146	09:16 hr	0.148	0.222	0.404	0.053
13	13216SMAIN	2808SMANHL	2807SMANHL	0.147	09:18 hr	0.198	0.297	1.674	0.192
14	13778SMAIN	2807SMANHL	3206SMANHL	0.149	09:19 hr	0.142	0.213	0.408	0.061
15	13780SMAIN	3206SMANHL	3207SMANHL	0.151	09:21 hr	0.178	0.267	1.993	0.156
16	13777SMAIN	3207SMANHL	2812SMANHL	0.152	09:22 hr	0.146	0.219	0.419	0.070
17	13220SMAIN	2812SMANHL	2797SMANHL	0.155	09:24 hr	0.178	0.268	2.046	0.157
18	13204SMAIN	2797SMANHL	2796SMANHL	0.161	09:26 hr	0.151	0.226	0.443	0.072
19	13212SMAIN	2796SMANHL	2805SMANHL	0.165	09:27 hr	0.194	0.292	0.454	0.172
20	13213SMAIN	2805SMANHL	2802SMANHL	0.167	09:30 hr	0.209	0.314	1.759	0.214
21	13227SMAIN	2802SMANHL	2816SMANHL	0.197	09:31 hr	0.182	0.274	0.545	0.095
22	13226SMAIN	2816SMANHL	2817SMANHL	0.200	09:34 hr	0.232	0.349	0.555	0.261
23	13725SMAIN	2817SMANHL	3168SMANHL	0.203	09:37 hr	0.236	0.354	1.825	0.268
24	13724SMAIN	3168SMANHL	3167SMANHL	0.204	09:38 hr	0.198	0.298	2.329	0.193
25	13723SMAIN	3167SMANHL	3166SMANHL	0.205	09:39 hr	0.148	0.222	3.532	0.108
26	13734SMAIN	3166SMANHL	3176SMANHL	0.233	09:39 hr	0.140	0.210	0.653	0.096
27	13733SMAIN	3176SMANHL	3175SMANHL	0.243	09:40 hr	0.190	0.285	0.682	0.101
28	13732SMAIN	3175SMANHL	3174SMANHL	0.245	09:41 hr	0.247	0.371	0.688	0.280
29	13731SMAIN	3174SMANHL	3173SMANHL	0.245	09:41 hr	0.259	0.388	1.948	0.319
30	13730SMAIN	3173SMANHL	3172SMANHL	0.246	09:42 hr	0.209	0.314	0.693	0.086
31	13738SMAIN	3172SMANHL	3177SMANHL	0.247	09:47 hr	0.291	0.436	0.699	0.389
32	13739SMAIN	3177SMANHL	3178SMANHL	0.295	09:50 hr	0.297	0.356	1.346	0.271
33	13740SMAIN	3178SMANHL	3179SMANHL	0.295	09:52 hr	0.299	0.359	1.675	0.276
34	13741SMAIN	3179SMANHL	3180SMANHL	0.295	09:52 hr	0.288	0.345	1.767	0.256
35	13742SMAIN	3180SMANHL	3181SMANHL	0.296	09:55 hr	0.192	0.230	3.110	0.117
36	13743SMAIN	3181SMANHL	3183SMANHL	0.296	09:54 hr	0.144	0.173	0.542	0.041
37	13744SMAIN	3183SMANHL	3184SMANHL	0.298	09:56 hr	0.236	0.283	0.546	0.096
38	13745SMAIN	3184SMANHL	3185SMANHL	0.301	09:58 hr	0.298	0.357	1.721	0.273
39	14102SMAIN	3185SMANHL	2739SMANHL	0.302	09:57 hr	0.204	0.245	2.915	0.131
40	16398SMAIN	2739SMANHL	3747SMANHL	0.321	09:56 hr	0.165	0.132	3.298	0.037
41	16399SMAIN	3747SMANHL	2895SMANHL	0.323	09:59 hr	0.196	0.157	0.263	0.037
42	14164SMAIN	2895SMANHL	2894SMANHL	0.324	09:58 hr	0.342	0.274	0.264	0.060
43	14162SMAIN	2894SMANHL	3279SMANHL	1.015	09:27 hr	0.472	0.472	1.263	0.437
44	14115SMAIN	3279SMANHL	3278SMANHL	1.016	09:29 hr	0.522	0.522	1.269	0.486
45	14114SMAIN	3278SMANHL	3277SMANHL	1.345	09:36 hr	0.560	0.560	2.968	0.602
46	16395SMAIN	3277SMANHL	3746SMANHL	1.347	09:37 hr	0.280	0.224	1.090	0.110
47	16396SMAIN	3746SMANHL	3281SMANHL	1.367	09:37 hr	0.360	0.288	1.106	0.111
48	16401SMAIN	3281SMANHL	2698SMANHL	1.369	09:38 hr	0.441	0.353	3.530	0.267
49	12958SMAIN	2698SMANHL	2702SMANHL	1.396	09:38 hr	0.246	0.197	8.149	0.085
50	16402SMAIN	2702SMANHL	3285SMANHL	1.419	09:37 hr	0.289	0.231	1.147	0.046
51	18428SMAIN	3285SMANHL	4046SMANHL	1.801	09:35 hr	0.399	0.266	4.767	0.155
52	18429SMAIN	4046SMANHL	STOR_10	1.803	09:35 hr	0.223	0.149	10.959	0.048

Existing plus Fox Point Wet Weather EPS Results

	ID	From ID	To ID	Maximum Flow (cfs)	Maximum Flow Time (hour)	Maximum Adjusted Depth (ft)	Maximum Adjusted d/D	Maximum Adjusted Velocity (ft/s)	Maximum q/Q
1	14590SMAIN	3139SMANHL	2779SMANHL	0.115	09:02 hr	0.189	0.284	0.327	0.117
2	14593SMAIN	2779SMANHL	3137SMANHL	0.148	09:04 hr	0.226	0.340	1.417	0.248
3	16500SMAIN	3137SMANHL	3136SMANHL	0.149	09:04 hr	0.107	0.160	4.116	0.055
4	16499SMAIN	3136SMANHL	2788SMANHL	0.149	09:05 hr	0.107	0.160	4.112	0.055
5	13194SMAIN	2788SMANHL	2789SMANHL	0.149	09:07 hr	0.093	0.140	0.420	0.041
6	13195SMAIN	2789SMANHL	2785SMANHL	0.149	09:07 hr	0.146	0.219	0.420	0.045
7	13192SMAIN	2785SMANHL	2781SMANHL	0.149	09:10 hr	0.199	0.299	1.689	0.194
8	13189SMAIN	2781SMANHL	2782SMANHL	0.149	09:13 hr	0.199	0.299	1.687	0.194
9	13190SMAIN	2782SMANHL	2783SMANHL	0.149	09:13 hr	0.113	0.169	0.415	0.048
10	13191SMAIN	2783SMANHL	2784SMANHL	0.149	09:14 hr	0.129	0.194	3.093	0.083
11	16404SMAIN	2784SMANHL	3748SMANHL	0.225	09:15 hr	0.128	0.193	4.758	0.081
12	16405SMAIN	3748SMANHL	2808SMANHL	0.225	09:16 hr	0.186	0.278	0.630	0.081
13	13216SMAIN	2808SMANHL	2807SMANHL	0.226	09:18 hr	0.248	0.372	1.896	0.295
14	13778SMAIN	2807SMANHL	3206SMANHL	0.228	09:19 hr	0.177	0.265	0.635	0.093
15	13780SMAIN	3206SMANHL	3207SMANHL	0.230	09:21 hr	0.221	0.332	2.255	0.238
16	13777SMAIN	3207SMANHL	2812SMANHL	0.231	09:22 hr	0.181	0.272	0.645	0.107
17	13220SMAIN	2812SMANHL	2797SMANHL	0.234	09:24 hr	0.221	0.331	2.308	0.236
18	13204SMAIN	2797SMANHL	2796SMANHL	0.262	09:26 hr	0.194	0.292	0.733	0.117
19	13212SMAIN	2796SMANHL	2805SMANHL	0.266	09:27 hr	0.252	0.377	0.743	0.277
20	13213SMAIN	2805SMANHL	2802SMANHL	0.268	09:30 hr	0.269	0.404	2.012	0.344
21	13227SMAIN	2802SMANHL	2816SMANHL	0.322	09:31 hr	0.238	0.357	0.903	0.155
22	13228SMAIN	2816SMANHL	2817SMANHL	0.325	09:34 hr	0.303	0.455	0.914	0.424
23	13725SMAIN	2817SMANHL	3168SMANHL	0.328	09:37 hr	0.307	0.460	2.082	0.433
24	13724SMAIN	3168SMANHL	3167SMANHL	0.329	09:38 hr	0.255	0.383	2.667	0.311
25	13723SMAIN	3167SMANHL	3166SMANHL	0.330	09:39 hr	0.188	0.282	4.063	0.174
26	13734SMAIN	3166SMANHL	3176SMANHL	0.382	09:39 hr	0.179	0.269	1.080	0.157
27	13733SMAIN	3176SMANHL	3175SMANHL	0.392	09:40 hr	0.246	0.369	1.109	0.163
28	13732SMAIN	3175SMANHL	3174SMANHL	0.394	09:41 hr	0.324	0.486	1.115	0.450
29	13731SMAIN	3174SMANHL	3173SMANHL	0.394	09:41 hr	0.338	0.508	2.210	0.513
30	13730SMAIN	3173SMANHL	3172SMANHL	0.395	09:42 hr	0.273	0.410	1.119	0.138
31	13738SMAIN	3172SMANHL	3177SMANHL	0.396	09:47 hr	0.382	0.572	1.126	0.624
32	13739SMAIN	3177SMANHL	3178SMANHL	0.472	09:50 hr	0.384	0.461	0.861	0.433
33	13740SMAIN	3178SMANHL	3179SMANHL	0.472	09:52 hr	0.387	0.465	1.901	0.441
34	13741SMAIN	3179SMANHL	3180SMANHL	0.472	09:52 hr	0.372	0.446	2.007	0.410
35	13742SMAIN	3180SMANHL	3181SMANHL	0.473	09:55 hr	0.244	0.292	3.561	0.186
36	13743SMAIN	3181SMANHL	3183SMANHL	0.473	09:54 hr	0.182	0.218	0.867	0.065
37	13744SMAIN	3183SMANHL	3184SMANHL	0.475	09:56 hr	0.302	0.362	0.871	0.152
38	13745SMAIN	3184SMANHL	3185SMANHL	0.478	09:58 hr	0.384	0.461	1.948	0.434
39	14102SMAIN	3185SMANHL	2739SMANHL	0.479	09:57 hr	0.258	0.310	3.327	0.208
40	16398SMAIN	2739SMANHL	3747SMANHL	0.538	09:56 hr	0.212	0.170	3.906	0.063
41	16399SMAIN	3747SMANHL	2895SMANHL	0.540	09:59 hr	0.309	0.247	0.440	0.062
42	14164SMAIN	2895SMANHL	2894SMANHL	0.541	09:58 hr	0.519	0.415	0.441	0.100
43	14162SMAIN	2894SMANHL	3279SMANHL	1.712	09:27 hr	0.658	0.658	2.329	0.738
44	14115SMAIN	3279SMANHL	3278SMANHL	1.713	09:29 hr	0.740	0.740	2.157	0.820
45	14114SMAIN	3278SMANHL	3277SMANHL	2.181	09:36 hr	0.800	0.800	3.239	0.977
46	16395SMAIN	3277SMANHL	3746SMANHL	2.183	09:37 hr	0.358	0.286	1.771	0.178
47	16396SMAIN	3746SMANHL	3281SMANHL	2.218	09:37 hr	0.466	0.373	1.799	0.181
48	16401SMAIN	3281SMANHL	2698SMANHL	2.220	09:38 hr	0.575	0.460	4.022	0.433
49	12958SMAIN	2698SMANHL	2702SMANHL	2.262	09:38 hr	0.313	0.251	9.388	0.138
50	16402SMAIN	2702SMANHL	3285SMANHL	2.285	09:37 hr	0.368	0.294	1.853	0.074
51	16428SMAIN	3285SMANHL	4046SMANHL	2.884	09:35 hr	0.508	0.339	5.454	0.248
52	16429SMAIN	4046SMANHL	STOR_10	2.886	09:35 hr	0.280	0.187	12.616	0.076

Ultimate Dry Weather EPS Results

	ID	From ID	To ID	Maximum Flow (cfs)	Maximum Flow Time (hour)	Maximum Adjusted Depth (ft)	Maximum Adjusted d/D	Maximum Adjusted Velocity (ft/s)	Maximum q/Q
1	14590SMAIN	3139SMANHL	2779SMANHL	0.115	09:02 hr	0.179	0.269	0.327	0.117
2	14593SMAIN	2779SMANHL	3137SMANHL	0.124	09:04 hr	0.206	0.310	1.348	0.208
3	16500SMAIN	3137SMANHL	3136SMANHL	0.125	09:04 hr	0.098	0.147	3.904	0.046
4	16499SMAIN	3136SMANHL	2788SMANHL	0.125	09:05 hr	0.098	0.147	3.900	0.047
5	13194SMAIN	2788SMANHL	2789SMANHL	0.125	09:07 hr	0.086	0.129	0.352	0.034
6	13195SMAIN	2789SMANHL	2785SMANHL	0.125	09:07 hr	0.134	0.200	0.351	0.038
7	13192SMAIN	2785SMANHL	2781SMANHL	0.125	09:10 hr	0.182	0.273	1.605	0.163
8	13189SMAIN	2781SMANHL	2782SMANHL	0.125	09:13 hr	0.182	0.273	1.602	0.163
9	13190SMAIN	2782SMANHL	2783SMANHL	0.125	09:13 hr	0.103	0.155	0.346	0.040
10	13191SMAIN	2783SMANHL	2784SMANHL	0.125	09:14 hr	0.119	0.178	2.932	0.069
11	16404SMAIN	2784SMANHL	3748SMANHL	0.148	09:14 hr	0.105	0.157	4.186	0.053
12	16405SMAIN	3748SMANHL	2808SMANHL	0.148	09:16 hr	0.149	0.223	0.409	0.053
13	13216SMAIN	2808SMANHL	2807SMANHL	0.149	09:18 hr	0.199	0.299	1.680	0.194
14	13778SMAIN	2807SMANHL	3206SMANHL	0.150	09:19 hr	0.143	0.214	0.413	0.062
15	13780SMAIN	3206SMANHL	3207SMANHL	0.153	09:21 hr	0.179	0.268	1.999	0.158
16	13777SMAIN	3207SMANHL	2812SMANHL	0.154	09:22 hr	0.147	0.220	0.423	0.071
17	13220SMAIN	2812SMANHL	2797SMANHL	0.157	09:24 hr	0.179	0.269	2.052	0.158
18	13204SMAIN	2797SMANHL	2796SMANHL	0.163	09:26 hr	0.152	0.227	0.448	0.073
19	13212SMAIN	2796SMANHL	2805SMANHL	0.167	09:27 hr	0.195	0.293	0.459	0.174
20	13213SMAIN	2805SMANHL	2802SMANHL	0.168	09:30 hr	0.210	0.316	1.763	0.216
21	13227SMAIN	2802SMANHL	2816SMANHL	0.213	09:31 hr	0.190	0.285	0.591	0.102
22	13228SMAIN	2816SMANHL	2817SMANHL	0.216	09:34 hr	0.242	0.364	0.601	0.282
23	13725SMAIN	2817SMANHL	3168SMANHL	0.221	09:36 hr	0.247	0.370	1.868	0.292
24	13724SMAIN	3168SMANHL	3167SMANHL	0.222	09:38 hr	0.207	0.311	2.384	0.210
25	13723SMAIN	3167SMANHL	3166SMANHL	0.293	09:38 hr	0.177	0.266	3.918	0.155
26	13734SMAIN	3166SMANHL	3176SMANHL	0.321	09:37 hr	0.164	0.246	0.902	0.132
27	13733SMAIN	3176SMANHL	3175SMANHL	0.332	09:38 hr	0.224	0.336	0.932	0.138
28	13732SMAIN	3175SMANHL	3174SMANHL	0.333	09:37 hr	0.293	0.439	0.937	0.380
29	13731SMAIN	3174SMANHL	3173SMANHL	0.334	09:39 hr	0.307	0.461	2.113	0.434
30	13730SMAIN	3173SMANHL	3172SMANHL	0.334	09:39 hr	0.247	0.371	0.939	0.117
31	13738SMAIN	3172SMANHL	3177SMANHL	0.335	09:46 hr	0.345	0.517	1.835	0.529
32	13739SMAIN	3177SMANHL	3178SMANHL	0.384	09:39 hr	0.341	0.410	1.476	0.352
33	13740SMAIN	3178SMANHL	3179SMANHL	0.384	09:45 hr	0.345	0.414	1.798	0.358
34	13741SMAIN	3179SMANHL	3180SMANHL	0.384	09:41 hr	0.331	0.398	1.898	0.333
35	13742SMAIN	3180SMANHL	3181SMANHL	0.384	09:48 hr	0.219	0.263	3.354	0.151
36	13743SMAIN	3181SMANHL	3183SMANHL	0.385	09:46 hr	0.164	0.197	0.703	0.053
37	13744SMAIN	3183SMANHL	3184SMANHL	0.387	09:45 hr	0.270	0.324	0.708	0.124
38	13745SMAIN	3184SMANHL	3185SMANHL	0.390	09:47 hr	0.342	0.411	1.846	0.354
39	14102SMAIN	3185SMANHL	2739SMANHL	0.390	09:49 hr	0.232	0.279	3.139	0.170
40	16398SMAIN	2739SMANHL	3747SMANHL	0.412	09:43 hr	0.186	0.149	3.589	0.048
41	16399SMAIN	3747SMANHL	2895SMANHL	0.414	09:45 hr	0.246	0.197	0.337	0.048
42	14164SMAIN	2895SMANHL	2894SMANHL	0.415	09:46 hr	0.420	0.336	0.338	0.077
43	14162SMAIN	2894SMANHL	3279SMANHL	1.331	09:24 hr	0.553	0.553	1.651	0.574
44	14115SMAIN	3279SMANHL	3278SMANHL	1.333	09:27 hr	0.607	0.607	1.656	0.638
45	14114SMAIN	3278SMANHL	3277SMANHL	1.684	09:32 hr	0.649	0.649	3.115	0.755
46	16395SMAIN	3277SMANHL	3746SMANHL	1.687	09:33 hr	0.313	0.251	1.358	0.138
47	16396SMAIN	3746SMANHL	3281SMANHL	1.716	09:33 hr	0.405	0.324	1.382	0.140
48	16401SMAIN	3281SMANHL	2698SMANHL	1.719	09:34 hr	0.499	0.399	3.751	0.335
49	12958SMAIN	2698SMANHL	2702SMANHL	1.756	09:34 hr	0.276	0.221	8.703	0.107
50	16402SMAIN	2702SMANHL	3285SMANHL	1.779	09:33 hr	0.326	0.261	1.431	0.058
51	18428SMAIN	3285SMANHL	4046SMANHL	2.312	09:33 hr	0.453	0.302	5.115	0.198
52	18429SMAIN	4046SMANHL	STOR_10	2.314	09:33 hr	0.252	0.168	11.791	0.061

Ultimate Wet Weather EPS Results

	ID	From ID	To ID	Maximum Flow (cfs)	Maximum Flow Time (hour)	Maximum Adjusted Depth (ft)	Maximum Adjusted d/D	Maximum Adjusted Velocity (ft/s)	Maximum q/Q
1	14590SMAIN	3139SMANHL	2779SMANHL	0.115	09:02 hr	0.189	0.284	0.327	0.117
2	14593SMAIN	2779SMANHL	3137SMANHL	0.148	09:04 hr	0.226	0.340	1.417	0.248
3	16500SMAIN	3137SMANHL	3136SMANHL	0.149	09:04 hr	0.107	0.160	4.116	0.055
4	16499SMAIN	3136SMANHL	2788SMANHL	0.149	09:05 hr	0.107	0.160	4.112	0.055
5	13194SMAIN	2788SMANHL	2789SMANHL	0.149	09:07 hr	0.093	0.140	0.420	0.041
6	13195SMAIN	2789SMANHL	2785SMANHL	0.149	09:07 hr	0.146	0.219	0.420	0.045
7	13192SMAIN	2785SMANHL	2781SMANHL	0.149	09:10 hr	0.199	0.299	1.689	0.194
8	13189SMAIN	2781SMANHL	2782SMANHL	0.149	09:13 hr	0.199	0.299	1.687	0.194
9	13190SMAIN	2782SMANHL	2783SMANHL	0.149	09:13 hr	0.113	0.169	0.415	0.048
10	13191SMAIN	2783SMANHL	2784SMANHL	0.149	09:14 hr	0.129	0.194	3.093	0.083
11	16404SMAIN	2784SMANHL	3748SMANHL	0.227	09:14 hr	0.129	0.193	4.768	0.082
12	16405SMAIN	3748SMANHL	2808SMANHL	0.227	09:16 hr	0.186	0.280	0.635	0.082
13	13216SMAIN	2808SMANHL	2807SMANHL	0.228	09:18 hr	0.249	0.374	1.900	0.297
14	13778SMAIN	2807SMANHL	3206SMANHL	0.229	09:19 hr	0.178	0.266	0.639	0.094
15	13780SMAIN	3206SMANHL	3207SMANHL	0.232	09:21 hr	0.222	0.333	2.259	0.239
16	13777SMAIN	3207SMANHL	2812SMANHL	0.233	09:22 hr	0.182	0.273	0.650	0.107
17	13220SMAIN	2812SMANHL	2797SMANHL	0.236	09:24 hr	0.221	0.332	2.313	0.238
18	13204SMAIN	2797SMANHL	2796SMANHL	0.264	09:26 hr	0.195	0.293	0.737	0.117
19	13212SMAIN	2796SMANHL	2805SMANHL	0.268	09:27 hr	0.252	0.379	0.748	0.279
20	13213SMAIN	2805SMANHL	2802SMANHL	0.269	09:30 hr	0.270	0.406	2.016	0.346
21	13227SMAIN	2802SMANHL	2816SMANHL	0.338	09:31 hr	0.244	0.366	0.949	0.162
22	13228SMAIN	2816SMANHL	2817SMANHL	0.341	09:34 hr	0.312	0.468	0.959	0.446
23	13725SMAIN	2817SMANHL	3168SMANHL	0.346	09:36 hr	0.316	0.474	2.110	0.457
24	13724SMAIN	3168SMANHL	3167SMANHL	0.347	09:38 hr	0.263	0.394	2.705	0.328
25	13723SMAIN	3167SMANHL	3166SMANHL	0.418	09:38 hr	0.213	0.319	4.343	0.220
26	13734SMAIN	3166SMANHL	3176SMANHL	0.470	09:37 hr	0.199	0.299	1.329	0.194
27	13733SMAIN	3176SMANHL	3175SMANHL	0.481	09:38 hr	0.276	0.413	1.358	0.200
28	13732SMAIN	3175SMANHL	3174SMANHL	0.482	09:37 hr	0.365	0.547	1.364	0.550
29	13731SMAIN	3174SMANHL	3173SMANHL	0.483	09:39 hr	0.383	0.575	2.318	0.628
30	13730SMAIN	3173SMANHL	3172SMANHL	0.483	09:39 hr	0.309	0.463	1.366	0.169
31	13738SMAIN	3172SMANHL	3177SMANHL	0.484	09:46 hr	0.436	0.654	1.996	0.764
32	13739SMAIN	3177SMANHL	3178SMANHL	0.561	09:39 hr	0.424	0.509	1.021	0.514
33	13740SMAIN	3178SMANHL	3179SMANHL	0.561	09:45 hr	0.428	0.514	1.984	0.524
34	13741SMAIN	3179SMANHL	3180SMANHL	0.561	09:41 hr	0.410	0.492	2.097	0.487
35	13742SMAIN	3180SMANHL	3181SMANHL	0.561	09:48 hr	0.266	0.320	3.736	0.221
36	13743SMAIN	3181SMANHL	3183SMANHL	0.562	09:46 hr	0.198	0.238	1.028	0.077
37	13744SMAIN	3183SMANHL	3184SMANHL	0.564	09:45 hr	0.332	0.398	1.032	0.181
38	13745SMAIN	3184SMANHL	3185SMANHL	0.567	09:47 hr	0.424	0.509	2.034	0.515
39	14102SMAIN	3185SMANHL	2739SMANHL	0.567	09:49 hr	0.282	0.339	3.488	0.247
40	16398SMAIN	2739SMANHL	3747SMANHL	0.629	09:43 hr	0.229	0.183	4.089	0.073
41	16399SMAIN	3747SMANHL	2895SMANHL	0.631	09:45 hr	0.358	0.286	0.514	0.073
42	14164SMAIN	2895SMANHL	2894SMANHL	0.632	09:46 hr	0.601	0.481	0.514	0.117
43	14162SMAIN	2894SMANHL	3279SMANHL	2.028	09:24 hr	0.748	0.748	2.538	0.874
44	14115SMAIN	3279SMANHL	3278SMANHL	2.030	09:27 hr	1.000	1.000	2.543	0.971
45	14114SMAIN	3278SMANHL	3277SMANHL	2.520	09:32 hr	1.000	1.000	3.240	1.129
46	16395SMAIN	3277SMANHL	3746SMANHL	2.523	09:33 hr	0.385	0.308	2.039	0.206
47	16396SMAIN	3746SMANHL	3281SMANHL	2.567	09:33 hr	0.505	0.404	2.075	0.209
48	16401SMAIN	3281SMANHL	2698SMANHL	2.570	09:34 hr	0.626	0.501	4.172	0.501
49	12958SMAIN	2698SMANHL	2702SMANHL	2.622	09:34 hr	0.338	0.270	9.784	0.159
50	16402SMAIN	2702SMANHL	3285SMANHL	2.645	09:33 hr	0.399	0.319	2.137	0.086
51	18428SMAIN	3285SMANHL	4046SMANHL	3.395	09:33 hr	0.555	0.370	5.701	0.291
52	18429SMAIN	4046SMANHL	STOR_10	3.397	09:33 hr	0.304	0.203	13.223	0.090

APPENDIX Q WATER SYSTEM ANALYSIS

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DEXTER WILSON ENGINEERING, INC.

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CONSULTING ENGINEERS

WATER SYSTEM ANALYSIS
FOR THE
FOX POINT FARMS PROJECT

May 15, 2020

2234 FARADAY AVENUE • CARLSBAD, CA • (760) 438-4422

WATER SYSTEM ANALYSIS
FOR THE
FOX POINT FARMS PROJECT

May 15, 2020



Prepared by:
Dexter Wilson Engineering, Inc.
2234 Faraday Avenue
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Job No. 1080-001

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May 15, 2020 1080-001

Nolen Communities
1680 N. Coast Highway, Unit #51
Encinitas, CA 92024

Attention: Sean Kilkenny, Partner

Subject: Water System Analysis for Fox Point Farms

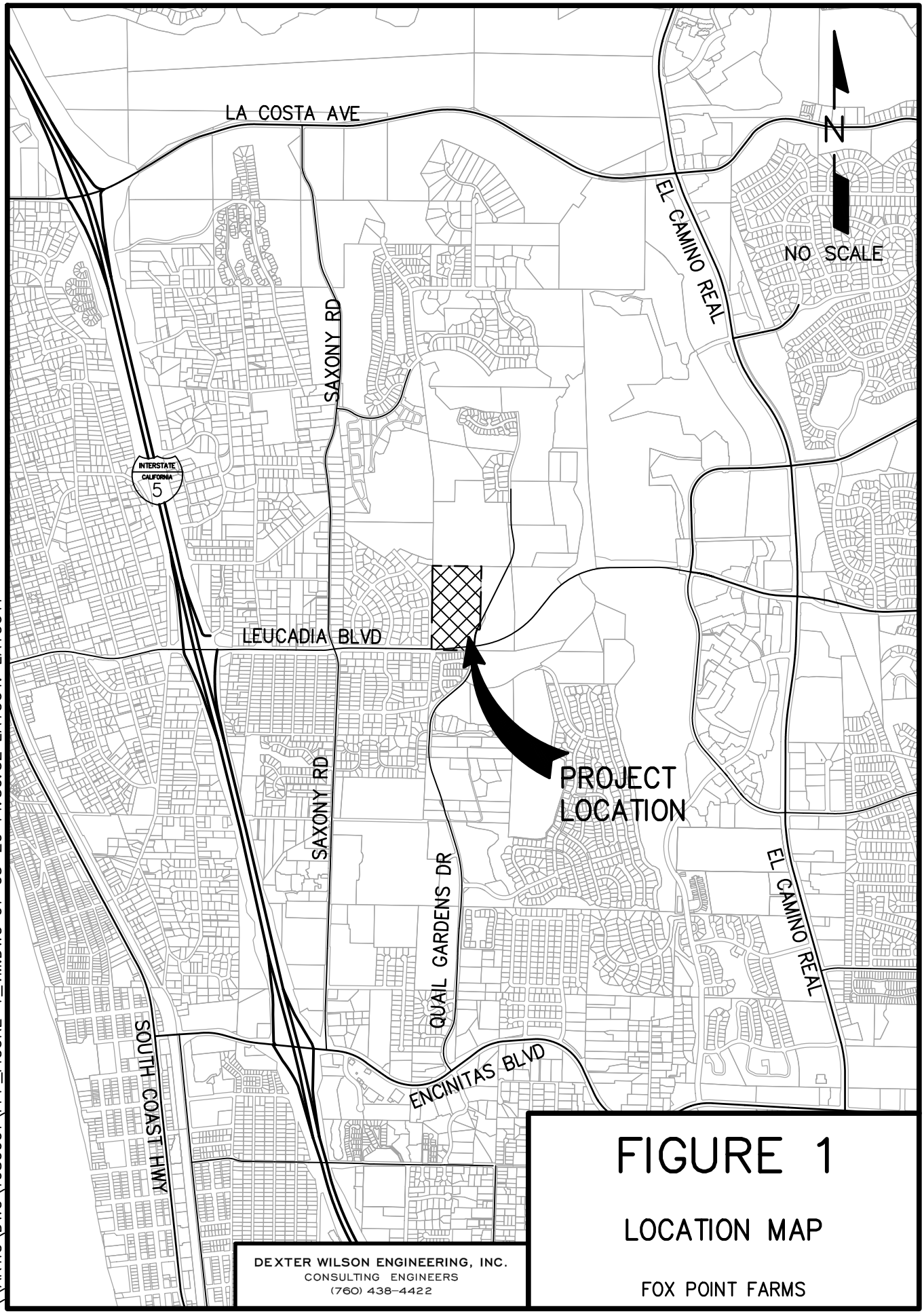
INTRODUCTION

This letter-report provides a water system analysis for the Fox Point Farms project in the City of Encinitas. This report will evaluate water service to the project with recommended required onsite facilities to serve the project.

PROJECT OVERVIEW

The Fox Point Farms project is located in the City of Encinitas at the northwest corner of Quail Gardens Drive and Leucadia Boulevard. The property has been used as a plant nursery historically. Figure 1 presents a vicinity map showing the subject property.

2234 FARADAY AVENUE • CARLSBAD, CA 92008 • (760) 438-4422 • FAX (760) 438-0173



\\ARTIC\DWG\1080001\FPF_FIGURE-1_VM.DWG 01-03-20 14:50:52 LAYOUT: LAYOUT1

FIGURE 1

LOCATION MAP

FOX POINT FARMS

DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
(760) 438-4422

DEVELOPMENT PLAN

The Fox Point Farms project is approximately 21.5 gross acres and plans to develop the site into a mix of residential and non-residential uses. Residential uses would include apartments, bungalows, carriage units, and townhomes totaling 250 units. Non-residential uses would include 5.5 acres of agricultural fields, a 10,000 square foot recreation center, 3,500 square foot restaurant, and 3,000 square foot barn. Access to the site will be from a driveway off Quail Gardens Drive on the east and a driveway from Sidonia Street to the west.

TOPOGRAPHY

The existing topography on the property ranges in elevation from a low of approximately 300 feet to a high of approximately 320 feet. The topography generally increases from south to north.

WATER SERVICE

Water service to the Fox Point Farms project will be provided by the San Dieguito Water District. The project is situated in the northern portion of the District service area. The project is within the 520 water pressure zone for water service. This pressure zone is supplied from the Badger Clearwell Reservoir. Based on a maximum gradeline of 520 feet, maximum static pressures for the pads on the property are anticipated to range from 87 psi to 95 psi.

PLANNING CRITERIA

Water system planning criteria are based on the criteria provided in the June 2010 San Dieguito Water District Water System Master Plan. Where applicable criteria was not found in this document, the Water Agency Standards were utilized. The pertinent criteria applicable to this study are summarized in Table 1 below.

TABLE 1
PLANNING CRITERIA SUMMARY

Description	Criteria	Source
Avg. Residential Water Demand	450 gpd/unit[1]	Water Agency Standards Table 4-1-1
Commercial Water Demand	5,000 gpd/net ac	Water Agency Standards Table 4-1-2
Agriculture Water Demand	3,000 gpd/ac	Water Agency Standards Table 4-1-2
Maximum Day Demand Factor	1.70	2010 Water System Master Plan
Peak Hour Demand Factor	2.75	2010 Water System Master Plan
Maximum Desirable Pressure	120 psi	2010 Water System Master Plan
Maximum Allowable Pressure	150 psi	2010 Water System Master Plan
Minimum Residual Pressure at Peak Hour	40 psi	2010 Water System Master Plan
Minimum Residual Pressure at Max. Day plus Fire Flow	20 psi	2010 Water System Master Plan
Maximum Pipeline Velocity, Peak Hour	7 ft/s	2010 Water System Master Plan
Maximum Pipeline Velocity, Max. Day plus Fire Flow	15 ft/s	2010 Water System Master Plan

[1] Based on a maximum density of 29 du/ac.

FIRE FLOW REQUIREMENTS

The final fire flow requirements for the Fox Point Farms project will be determined by the Encinitas Fire Department. The determination is made based on building square footage and construction type. At the time of writing this report, the final determination of a fire flow requirement has not been made. For planning purposes, the 2010 Water System Master Plan uses a fire flow requirement of 2,500 gpm for multi-family residential and storefront commercial and restaurant development. Similarly, The Water Agency Standards use a fire flow of 2,500 gpm for condominiums and apartments and 3,000 gpm for commercial. Based on our experience and the relatively small size of the proposed buildings, the actual fire flow requirement for this project is not likely to exceed 2,500 gpm. For planning purposes, we are recommending that a fire flow requirement of 2,500 gpm be considered for the purposes of this report.

EXISTING WATER DEMAND

The existing property has three existing water meters to meet the water demands of the site historical use as a plant nursery. Based on water meter billings from January 17, 2017 to September 11, 2017, Table 2 summarizes the measured water use at the site for these three meters.

TABLE 2
FOX POINT FARMS
HISTORICAL WATER USE (1/17/17 – 9/11/17)

Water Meter	Average Usage, gpd
14042779	26,103
14050599	11,974
14050604	17,457
TOTAL AVERAGE USAGE	**55,534**

PROJECTED WATER DEMANDS

Based on the criteria presented in Table 1, Table 3 summarizes the projected average water demands for the Fox Point Farms project. The projected maximum day demand is 230,350 gpd (160 gpm) and the projected peak hour demand is 372,625 gpd (259 gpm).

TABLE 3
FOX POINT FARMS
PROJECTED WATER DEMAND

Land Use	Quantity	Demand Factor	Average Demand, gpd
MF Residential	250 units	450 gpd/unit	112,500
Commercial	1.3 ac	5,000 gpd/ac	6,500
Agricultural	5.5 ac	3,000 gpd/ac	16,500
Landscaping	---	0 gpd/ac[1]	0
TOTAL			**135,500**

[1] Proposed to be irrigated with recycled water.

WATER CONSERVATION

The Fox Point Farms projected is committed to being sensitive to the impacts that this project will have on the environment. Part of this commitment is an effort to reduce water use on the project to the extent possible. Due to the increased awareness of the need to conserve water in recent years, the State and many local governments have mandated water conservation measures that must be implemented by all new development. Table 4 summarizes the conservation measures that are currently mandated by the State of California and also provides the requirements of the 2019 California Green Building Standards Code.

TABLE 4
MANDATED WATER CONSERVATION DEVICES

Device	Baseline Requirement	2019 Green Building Standards Code
Showerheads	2.5 gpm	1.8 gpm
Lavatory Faucets	2.2 gpm	1.2 gpm
Sink Faucets	2.2 gpm	1.8 gpm
Metering Faucets in Public Restrooms	0.25-0.75 gal/cycle	0.2 gal/cycle
Residential Water Closets	1.6 gpf	1.28 gpf
Flushometer Valves	1.6 gpf	1.28 gpf
Commercial Water Closets	1.6 gpf	1.28 gpf
Urinals	1.0 gpf	0.5 gpf

There are a number of non-mandatory water conservation measures that the project can consider to reduce water use. Some of these measures are summarized below:

1. Hot Water Pipe Insulation. Hot water pipes shall be insulated and hot and cold water piping shall be separated, resulting in annual savings of 2,400 gallons per residential unit.

2. Pressure Reducing Valves. The maximum service pressure shall be set to 60 psi to reduce any potential leakage present and prevent excessive flow of water from appliances and fixtures, resulting in annual water savings of 1,800 gallons per residential unit.

3. Water Efficient Dishwashers. Water efficient dishwashers that carry Energy Star label shall be installed in residential units, resulting in an estimated annual water savings of 650 gallons per residential unit.

4. Dual Flush Toilets. Dual flush toilets in a household can reduce water use by an estimated 4,000 gallons per year.

5. Recycled Water. Recycled water will be used to irrigate common landscaped areas. Based on information provided by the landscape architect, the estimated average recycled water demand would be approximately 3,400 gpd.

Other measures that can be considered are the implementation of gray water systems and rain water harvesting. Gray water systems are typically not feasible on small residential lots so it is unlikely to be a viable option. Rain water harvesting would need to be studied further to determine how and where the water could be stored and where it could be re-used.

Table 5 summarizes the estimated residential water conservation savings for non-mandated water conservation measures to be considered on the project.

TABLE 5
FOX POINT FARMS MULTI-FAMILY
PROPOSED WATER CONSERVATION MEASURES

Measure	Location	Yearly Water Savings, gal/unit	Daily Water Savings, gpd/unit	Project Total Water Savings[2], gpd
Hot Water Pipe Insulation	Indoor	2,400	6.58	1,645
Pressure Reducing Valves	Indoor	1,800	4.93	1,233
Water Efficient Dishwashers	Indoor	650	1.78	445
Dual Flush Toilets	Indoor	4,000	10.96	2,740
TOTAL		**8,850**	**24.25**	**6,063**

[1] Based on 250 Multi-Family Residential Units.

NET POTABLE WATER DEMANDS

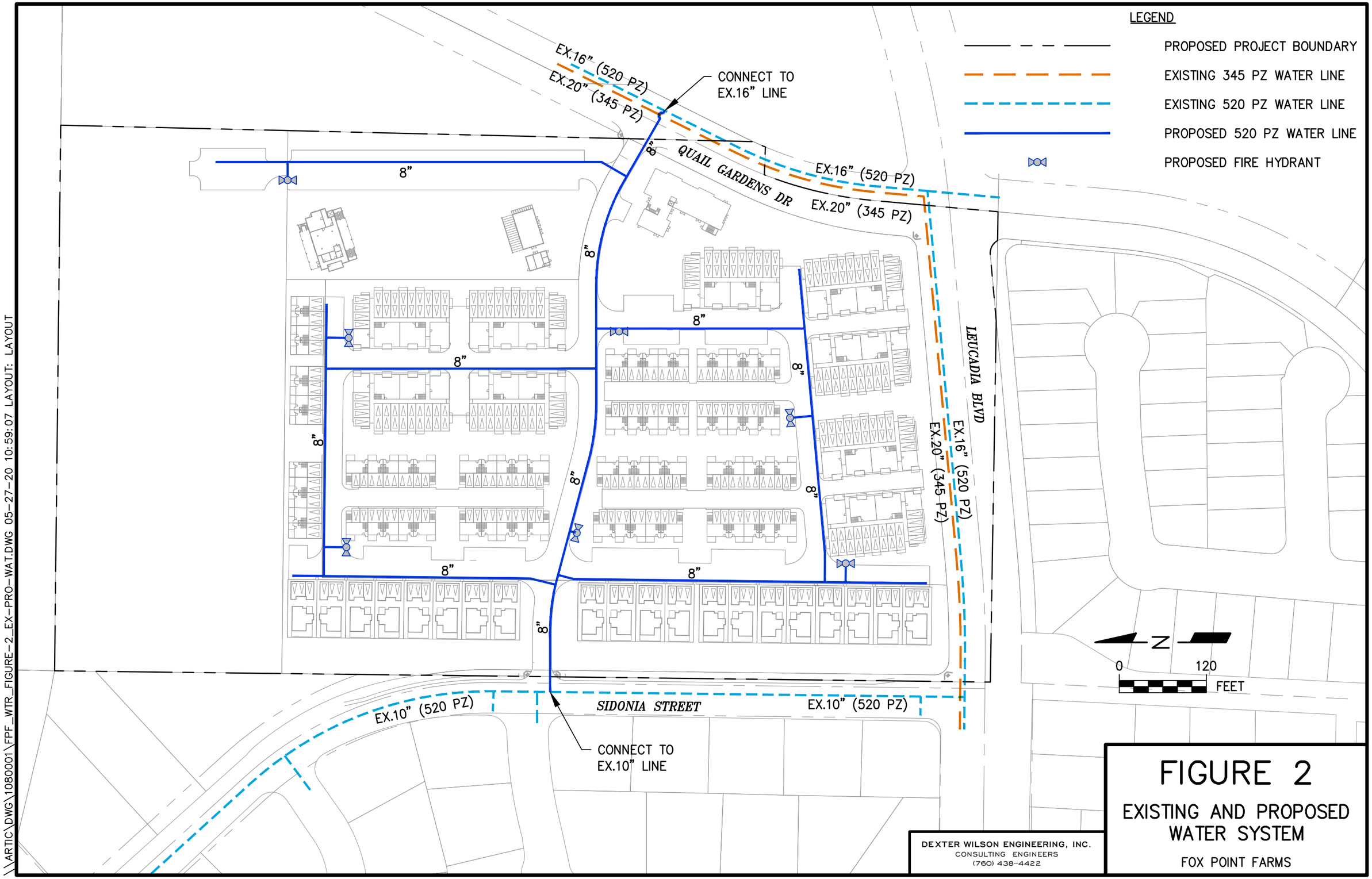
Based on the information presented above, Table 6 summarizes the baseline projected water use for the project and the net potable water demands with the implementation of water conservation measures.

TABLE 6 NET POTABLE WATER USE SUMMARY	
Description	**Average Water Use, gpd**
Baseline Water Use	
Potable Water Use (Table 3)	135,500
Common Area Irrigation	3,400
Total Baseline Water Use	**138,900**
Water Conservation Savings	
Recycled Water Use	3,400
Residential Water Conservation	6,063
Total Conservation Savings	**9,463**
NET POTABLE WATER USE	**129,437**

The projected net potable water use of 129,437 gpd represents a net increase of approximately 73,903 gpd of water use when compared to historical water use on the site (Table 2).

EXISTING WATER FACILITIES

The existing water system in the vicinity of the project consists of 345 Zone and 520 Zone pipelines. There are 16-inch 520 Zone and 20-inch 345 Zone transmission lines in Leucadia Boulevard and a 20-inch 345 Zone transmission line in Quail Gardens Drive within this pressure zone and smaller diameter pipes connecting to these lines. There is an existing 10-inch 520 Zone line in Sidonia Street along the western project boundary. The location of existing water facilities in the vicinity of the project are shown on Figure 2.



\\ARTIC\DWG\1080001\FPF_WTR_FIGURE-2_EX-PRO-WAT.DWG 05-27-20 10:59:07 LAYOUT: LAYOUT

FIGURE 2

EXISTING AND PROPOSED WATER SYSTEM

FOX POINT FARMS

DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
(760) 438-4422

PROPOSED WATER SYSTEM

To receive water service, the project proposes to make a connection to the existing 16-inch 520 Zone line in Quail Gardens Drive and a connection to the existing 10-inch 520 Zone line in Sidonia Street and construct a public water loop between these connections. The onsite public loop line will be located within the private access driveway and has been preliminarily sized as 8-inch to meet the anticipated fire flow requirements for the project. Additional 8-inch public water system piping will be extended off this main loop line. All onsite fire hydrants and building fire sprinkler laterals will be connected to these public lines. The onsite public line is also anticipated to supply the domestic service laterals and meters for each building. Figure 2 provides the proposed water system improvements for the project.

POTENTIAL OFFSITE IMPACTS

To evaluate the potential impacts of this project on the existing 520 Zone system, the San Dieguito Water District will incorporate the proposed Fox Point Farms project into their water system hydraulic model and evaluate the system under several demand scenarios. In doing so, there are several proposed projects in the area that are proposed to be served by the 520 Zone system and the District will need to assess the cumulative impact of this proposed development. Table 7 summarizes the potential projects in the area that are proposed to receive service from 520 Zone system and provides the projected water demands for these projects.

TABLE 7
LOCAL POTENTIAL DEVELOPMENT PROJECTS

Housing Element Site No.	Description	Proposed Residential Units	Demand Factor	Average
05	Encinitas Blvd. and Quail Gardens	119	450 gpd/unit	53,500
09	Fox Point Farms	250	---[1]	129,437
12	Sunshine Gardens	84	450 gpd/unit	37,800
AD 2 a,b,c	Quail Meadows	485	---[2]	189,150
TOTAL				**409,887**

[1] Estimated net potable water use (See Table 6).
[2] Estimated water use from April 24, 2020 Water System Analysis for the Quail Meadows Project.

Sean Kilkenny
May 15, 2020
Fox Point Farms

RECYCLED WATER

In addition to the agricultural fields, the proposed Fox Point Farms project will include some common landscaped areas. These areas are to be irrigated with recycled water. There are existing 8-inch recycled water lines in Quail Gardens Drive and Leucadia Boulevard that can supply recycled water to the project. It is recommended to connect to the existing line and set a meter near street right-of-way. The irrigation system downstream of the meter would be private and the responsibility of the project to maintain. The project landscape architect prepared some calculations to estimate landscape irrigation requirements and determined that the average annual water use for common landscaped areas in approximately 3,400 gpd.

Thank you for the opportunity to work on this project. If you have any questions on the content of this report, please let us know.

Dexter Wilson Engineering, Inc.

Stephen M. Nielsen, P.E.

SMN:ps

Attachment(s)

APPENDIX R PROJECT FACILITY AVAILABILITY FORMS

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PROJECT FACILITY AVAILABILITY FORM- City of Encinitas

SEWER

Please type or use pen

Bob Echter
Owner's Name — Phone

1251 Quail Gardens Drive
Owner's Mailing Address — Street

Encinitas — CA — 92024
City — State — Zip

ORG _____
ACCT _____
ACT _____
TASK _____
DATE _____ AMT $ _____

S

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A.
- [X] Major Subdivision (TM)
- [ ] Minor Subdivision (TPM)
- [ ] Certificate of Compliance: _____
- [ ] Boundary Adjustment
- [ ] Specific Plan or Specific Plan Amendment
- [ ] Rezone (Reclassification) from _____ to _____ zone
- [ ] Major Use Permit (MUP), purpose: _____
- [ ] Time Extension... Case No. _____
- [ ] Expired Map... Case No. _____
- [ ] Other _____

B.
- [X] Residential . . . Total number of dwelling units 250
- [X] Commercial. . . Gross floor area 3,500 SF Restaurant / 11,000 SF Rec Center
- [ ] Industrial. . . . . Gross floor area _____
- [X] Other. . . . . Gross floor area 3,000 SF Ag. Storage

C. Total Project acreage 19.7 ac Total number of lots _____

D. Is the project proposing its own wastewater treatment plant? Yes [ ] No [X]
Is the project proposing the use of reclaimed water? Yes [ ] No [ ]

Assessor's Parcel Number(s)
(Add extra if necessary)

254	612	12

Thomas Bros. Page _____ Grid _____

Project address 1150 Quail Gardens Dr.
Street

Leucadia
Comm. Advisory Board Area

Owner/Applicant agrees to pay all necessary construction costs and dedicate all district required easements to extend service to the project.
OWNER/APPLICANT MUST COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature: _____ Nolen Communities, LLC Date: 12/4/2019

Address: 1680 N. Coast Hwy, #351 Encinitas, CA 92024 Phone: 858-357-5417

(On completion of above, present to the sewer district to establish facility availability. Section 2 below)

SECTION 2. FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District name Encinitas Sanitary Service area Encinitas

A. [X] Project is in the district.
- [ ] Project is not in the district but is within its Sphere of Influence boundary, owner must apply for annexation.
- [ ] Project is not in the district and is **not** within its Sphere of Influence boundary.
- [ ] The project is not located entirely within the district and a potential boundary issue exists with the _____ District.

B. [X] Facilities to serve the project [X] ARE [ ] ARE NOT reasonably expected to be available within the next 5 years based on the capital facility plans of the district. Explain in space below or on attached. Number of sheets attached: _____
- [ ] Project will not be served for the following reason(s): _____

C. [ ] **District conditions are attached. Number of sheets attached:** _____
- [ ] **District has specific water reclamation conditions which are attached. Number of sheets attached:** _____
- [ ] **District will submit conditions at a later date.**

D. [ ] **How far will the pipeline(s) have to be extended to serve the project?** _____

Date: 12-11-19 Expiration date: 12-11-20 *(One year from date of issuance unless district indicates otherwise)*

Authorized signature: _____ Print name: Angela Simon

Print title: Eng. Tech. Phone: 760-633-2706

NOTE: THIS DOCUMENT IS NOT A COMMITMENT OF FACILITIES OR SERVICE BY THE DISTRICT. On completion of Section 2 by the district, applicant is to submit this form with application to the Zoning Counter at the Planning &

PROJECT FACILITY AVAILABILITY FORM - City of Encinitas — SCHOOL

Please type or use pen
(Two forms are needed if project is to be served by separate school districts)

Bob Echter
Owner's Name — Phone

1251 Quail Gardens Drive
Owner's Mailing Address — Street

Encinitas — CA — 92024
City — State — Zip

ORG ____ ACCT ____ ACT ____ TASK ____ DATE ____

Sc

ELEMENTARY ____ HIGH SCHOOL ____ UNIFIED ____

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A. **LEGISLATIVE ACT**
- ☐ Rezone from ____ zone density/intensity to ____ zone density/intensity.
- ☐ General Plan Amendment
- ☐ Specific Plan
- ☐ Specific Plan Amendment

B. **DEVELOPMENT PROJECT**
- ☒ Major Subdivision (TM)
- ☐ Minor Subdivision (TPM)
- ☐ Boundary Adjustment
- ☐ Major Use Permit (MUP), purpose: ____
- ☐ Time Extension... Case No. ____
- ☐ Expired Map... Case No. ____
- ☐ Other ____

C.
- ☒ Residential ..... Total number of dwelling units 250
- ☒ Commercial ..... Gross floor area 3,500 Restaurant
- ☐ Industrial ..... Gross floor area ____
- ☒ Other ..... Gross floor area Ag open space, Rec Center

D. Total Project acreage 19.7 ac Total number of lots 7

Assessor's Parcel Number(s)
(Add extra if necessary)

254	612	12

Thomas Bros. Page ____ Grid ____

Project address 1150 Quail Gardens Dr.
Street

Leucadia — 92024
Community Planning Area/Subregion — Zip

Applicant's Signature [signature] Nolen Communities, LLC Date 12/4/2019

Address 1680 N. Coast Hwy #151 Encinitas, CA 92024 Phone 858-357-5417

(On completion of above, present to the school district to complete Section 2 below)

SECTION 2. FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District Name: Encinitas Union School District

If not in a unified district, which elementary or high school district must also fill out a form? ____

Indicate the location and distance of proposed schools of attendance. Elementary: Capri miles: 1.72
Junior/Middle: ____ miles: ____ High school: ____ miles: ____

☒ This project will result in the overcrowding of the ☒ elementary ☐ junior/middle ☐ high school. *(check all that apply)*

☒ Fees will be levied either in accordance with Government Code Section 53080 or Section 65970 prior to the issuance of building permits.

☐ Project is located entirely within the district and is eligible for service.

☐ The project is not located entirely within the district and a potential boundary issue may exist with the ____ school district.

FOR LEGISLATIVE ACTS (Rezones, General Plan Amendments, Specific Plans) ONLY:

☐ Pursuant to County Ordinance and the Public Facility Element of the General Plan, facilities to serve the project have been committed through a binding agreement satisfactory to the school district.

☐ A binding agreement has not yet been signed, but one will be required prior to legislative approval.

☐ No binding agreement is necessary.

Authorized signature: Beth Hilton Print name: Beth Hilton

Print title: Controller Phone: (760) 944-4300 x1169

On Completion of Section 2 by the district, applicant is to submit this form with application to the Zoning Counter at the Planning & Community Development Department, 505 S. Vulcan Ave., Encinitas, CA 92024

DPL/ZC #399Sc(Rev.4/91)

PROJECT FACILITY AVAILABILITY FORM

FIRE

Please type or use pen

Bob Echter
Owner's name Phone

1251 Quail Gardens Drive
Owner's mailing address Street

Encinitas CA 92024
City State Zip

F

ORG_____
ACCT_____
ACT_____
TASK_____
AMT $_____ DATE_____

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A.
- [X] Major Subdivision (TM)
- [ ] Minor Subdivision (TPM)
- [ ] Certificate of Compliance, purpose: _____
- [X] Major Use Permit (MUP), purpose: Events
- [ ] Rezone (Reclassification) from _____ to _____ zone
- [ ] Time Extension... Case No. _____
- [ ] Expired Map..... Case No. _____
- [X] Other Ag. Open Space, Restaurant
- [ ] Specific Plan or Specific Plan Amendment
- [ ] Boundary Adjustment

B.
- [X] Residential.....Total number of dwelling units 250
- [X] Commercial.....Gross floor area 3,500 SF
- [ ] Industrial.....Gross floor area _____
- [X] Other.....Gross floor area 3,000 SF Ag Storage/ 10,000 SF Rec. Center

C. Total Project acreage 19.7 Total lots 7 Smallest proposed lot _____

Assessor's Parcel Number(s)
(Add extra if necessary)

254	612	17

Thomas Bros. Page _____ Grid _____

Project address 1150 Quail Gardens
Street

Leucadia 92024
Community Planning Area/Subregion Zip

OWNER/APPLICANT AGREES TO COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's signature: _____ Nolen Communities, LLC Date: 12/5/2019

Address: 1680 N. Coast Highway #51 Encinitas, CA 92024 Phone: 858-357-5417

(On completion of above, present to the district that provides fire protection to complete Section 2 and 3 below)

SECTION 2. FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District Name: City of Encinitas Fire Department

Indicate the location and distance of the primary fire station that will serve the proposed project:

801 Orpheus Av. Encinitas, CA 92024 Approximately 1 mile

A.
- [X] Project is in the District and eligible for service.
- [ ] Project is not in District but it is within its Sphere of Influence boundary, owner must apply for annexation.
- [ ] Project is not in the District and not within the District's Sphere of Influence.
- [ ] Project is not located entirely within the District and a potential boundary issue exists with the _____ District.

B. [ ] Based on the capacity and capability of the District's existing and planned facilities, fire protection facilities are currently adequate or will be adequate to serve the proposed project. The expected emergency travel time to the proposed project is _____ minutes.
- [ ] Fire protection facilities are not expected to be adequate to serve the proposed development within the next five years.

C.
- [ ] District conditions are attached. The number of sheets attached: _____.
- [ ] District will submit conditions at a later date.

SECTION 3. FUELBREAK REQUIREMENTS

Note: The fuelbreak requirements prescribed by the fire district for the proposed project do not authorize any clearing prior to project approval by the Department of Planning and Land Use.

- [ ] Within the proposed project _____ feet of clearing will be required around all structures.
- [ ] The proposed project is located in a hazardous wildland fire area, and additional fuelbreak requirements may apply. Environmental mitigation requirements should be coordinated with the fire district to ensure that these requirements will not pose fire hazards.

Date: 12/6/19 Expiration date: 12/6/20 *(One year from date of issuance unless district indicates otherwise)*

_____ Hans Schmidt, Acting Fire Marshal 760 633 2820
Authorized signature *Print name and title* *Phone*

On completion of Section 2 and 3 by the District, applicant is to submit this form with application to: Zoning Counter at the Planning and Community Development Department, 505 S. Vulcan Ave., Encinitas, CA 92024

PROJECT FACILITY AVAILABILITY FORM- City of Encinitas — SEWER

Please type or use pen

Bob Echter
Owner's Name — Phone

1251 Quail Gardens Drive
Owner's Mailing Address — Street

Encinitas — CA — 92024
City — State — Zip

ORG _____
ACCT _____
ACT _____
TASK _____
DATE _____ AMT $ _____
DISTRICT CASHIER'S USE ONLY

S

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A. [X] Major Subdivision (TM) [ ] Certificate of Compliance: _____
[ ] Minor Subdivision (TPM) [ ] Boundary Adjustment
[ ] Specific Plan or Specific Plan Amendment
[ ] Rezone (Reclassification) from _____ to _____ zone
[ ] Major Use Permit (MUP), purpose: _____
[ ] Time Extension... Case No. _____
[ ] Expired Map... Case No. _____
[ ] Other _____

B. [X] Residential . . . Total number of dwelling units 250
[X] Commercial. . . Gross floor area 3,500 SF Restaurant / 11,000 SF Rec Center
[ ] Industrial. . . . . Gross floor area _____
[X] Other. . . . . Gross floor area 3,000 SF Ag. Storage

C. Total Project acreage 19.7 ac Total number of lots 7

D. Is the project proposing its own wastewater treatment plant? Yes [ ] No [X]
Is the project proposing the use of reclaimed water? Yes [ ] No [ ]

Assessor's Parcel Number(s)
(Add extra if necessary)

254	612	12

Thomas Bros. Page _____ Grid _____

Project address 1150 Quail Gardens Dr
Street

Leucadia
Comm. Advisory Board Area

Owner/Applicant agrees to pay all necessary construction costs and dedicate all district required easements to extend service to the project.
OWNER/APPLICANT MUST COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature: _____ Nolen Communities, LLC Date: 12/4/2019

Address: 1680 N. Coast Hwy, #51 Encinitas, CA 92024 Phone: 858-357-5417

(On completion of above, present to the sewer district to establish facility availability. Section 2 below)

SECTION 2. FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District name Leucadia Wastewater District Service area Encinitas

A. [ ] Project is in the district.
[ ] Project is not in the district but is within its Sphere of Influence boundary, owner must apply for annexation.
[X] Project is not in the district and is **not** within its Sphere of Influence boundary.
[ ] The project is not located entirely within the district and a potential boundary issue exists with the _____ District.

B. [X] Facilities to serve the project [X] ARE [ ] ARE NOT reasonably expected to be available within the next 5 years based on the capital facility plans of the district. Explain in space below or on attached. Number of sheets attached: _____
[ ] Project will not be served for the following reason(s): _____

C. [ ] **District conditions are attached. Number of sheets attached:** _____
[ ] **District has specific water reclamation conditions which are attached. Number of sheets attached:** _____
[X] **District will submit conditions at a later date.**

D. [ ] **How far will the pipeline(s) have to be extended to serve the project?** N/A

Date: 12/6/19 Expiration date: 12/6/20 *(One year from date of issuance unless district indicates otherwise)*

Authorized signature: _____ Print name: Ian Riffel

Print title: Field Services Specialist Phone: (760) 753-0155

NOTE: THIS DOCUMENT IS NOT A COMMITMENT OF FACILITIES OR SERVICE BY THE DISTRICT. On completion of Section 2 by the district, applicant is to submit this form with application to the Zoning Counter at the Planning &

PROJECT FACILITY AVAILABILITY FORM - City of Encinitas

SCHOOL

Sc

Please type or use pen
(Two forms are needed if project is to be served by separate school districts)

Bob Echter
Owner's Name — Phone

1251 Quail Gardens Drive
Owner's Mailing Address — Street

Encinitas — CA — 92024
City — State — Zip

ORG _____
ACCT _____
ACT _____ ELEMENTARY _____
TASK _____ HIGH SCHOOL _____
DATE _____ UNIFIED _____

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A. **LEGISLATIVE ACT**
- ☐ Rezone from ____ zone density/intensity to ____ zone density/intensity.
- ☐ General Plan Amendment
- ☐ Specific Plan
- ☐ Specific Plan Amendment

B. **DEVELOPMENT PROJECT**
- ☒ Major Subdivision (TM)
- ☐ Minor Subdivision (TPM)
- ☐ Boundary Adjustment
- ☐ Major Use Permit (MUP), purpose: _____
- ☐ Time Extension... Case No. _____
- ☐ Expired Map... Case No. _____
- ☐ Other _____

C.
- ☒ Residential ..... Total number of dwelling units 250
- ☒ Commercial ..... Gross floor area 3,500 Restaurant
- ☐ Industrial ..... Gross floor area _____
- ☒ Other ..... Gross floor area Ag open space, Rec Center

D. Total Project acreage 19.7 ac Total number of lots 7

Assessor's Parcel Number(s)
(Add extra if necessary)

2	5	4	6	1	2	1	2

Thomas Bros. Page _____ Grid _____

Project address 1150 Quail Gardens
Street

Leucadia — 92024
Community Planning Area/Subregion — Zip

Applicant's Signature _____ Nolen Communities, LLC Date 12/4/2019

Address 1680 N. Coast Hwy, #351 Encinitas, CA 92024 Phone 858-357-5417

(On completion of above, present to the school district to complete Section 2 below)

SECTION 2. FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

If not in a unified district, which elementary or high school district must also fill out a form? Encinitas Union

District Name: ~~San Dieguito Union High School District~~

Indicate the location and distance of proposed schools of attendance. Elementary: N/A miles: —
Junior/Middle: Oak Crest Middle miles: 2.7 High school: La Costa Canyon miles: 3.8

- ☑ This project will result in the overcrowding of the ☐ elementary ☑ junior/middle ☑ high school. *(check all that apply)*
- ☑ Fees will be levied either in accordance with Government Code Section 53080 or Section 65970 prior to the issuance of building permits.
- ☑ Project is located entirely within the district and is eligible for service.
- ☐ The project is not located entirely within the district and a potential boundary issue may exist with the _____ school district.

FOR LEGISLATIVE ACTS (Rezones, General Plan Amendments, Specific Plans) ONLY:
- ☐ Pursuant to County Ordinance and the Public Facility Element of the General Plan, facilities to serve the project have been committed through a binding agreement satisfactory to the school district.
- ☐ A binding agreement has not yet been signed, but one will be required prior to legislative approval.
- ☐ No binding agreement is necessary.

John Addleman
Authorized signature: ~~John Addleman~~ Print name: John Addleman

Print title: Director of Planning & Financial Management Phone: 760-753-6491

On completion of Section 2 by the district, applicant is to submit this form with application to the Zoning Counter at the Planning & Community Development Department, 505 S. Vulcan Ave., Encinitas, CA 92024

DPL/ZC #399Sc(Rev.4/91)

PROJECT FACILITY AVAILABILITY FORM - City of Encinitas

WATER

Please type or use pen

Bob Echter
Owner's Name — Phone

1251 Quail Gardens Drive
Owner's Mailing Address — Street

Encinitas — CA — 92024
City — State — Zip

ORG _____
ACCT _____
ACT _____
TASK _____
DATE _____ AMT $ _____
DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A. [X] Major Subdivision (TM) [ ] Specific Plan or Specific Plan Amendment
[ ] Minor Subdivision (TPM) [ ] Certificate of Compliance: _____
[ ] Boundary Adjustment
[ ] Rezone (Reclassification) from _____ to _____ zone.
[X] Major Use Permit (MUP), purpose: Events
[ ] Time Extension... Case No. _____
[ ] Expired Map... Case No. _____
[ ] Other _____

B. [X] Residential ..... Total number of dwelling units 250 MF
[X] Commercial ..... Gross floor area 3,300 SF Restaurant
[ ] Industrial ..... Gross floor area _____
[X] Other ..... Gross floor area REC Center (10K SF)

C. Total Project acreage 19.7 Total number of lots 7

D. Is the project proposing the use of groundwater? [ ] Yes [X] No
Is the project proposing the use of reclaimed water? [X] Yes [ ] No

Assessor's Parcel Number(s)
(Add extra if necessary)

254	612	12

Thomas Bros. Page _____ Grid _____

1150 Quail Gardens Dr
Project address — Street

Leucadia — 92024
Community Planning Area/Subregion — Zip

Owner/Applicant agrees to pay all necessary construction costs, dedicate all district required easements to extend service to the project and COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature: _____ Date: 12/5/2019

Address: 1680 N. Coast Hwy, #51 Encinitas, CA 92024 Phone: 858-357-5417

(On completion of above, present to the water district to establish facility availability, Section 2 below)

SECTION 2. FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District name SAN DIEGUITO WATER DIST. Service area ENCINITAS

A. [✓] Project is in the district.
[ ] Project is not in the district but is within its Sphere of Influence boundary, owner must apply for annexation.
[ ] Project is not in the district and is not within its Sphere of Influence boundary.
[ ] The project is not located entirely within the district and a potential boundary issue exists with the _____ District.

B. [✓] Facilities to serve the project [✓] ARE [ ] ARE NOT reasonably expected to be available within the next 5 years based on the capital facility plans of the district. Explain in space below or on attached ___. (Number of sheets)
[ ] Project will not be served for the following reason(s): _____

C. [ ] **District conditions are attached. Number of sheets attached:** _____
[ ] **District has specific water reclamation conditions which are attached. Number of sheets attached:** _____
[✓] **District will submit conditions at a later date.**

D. [ ] **How far will the pipeline(s) have to be extended to serve the project?** _____

Date: 12-12-19 Expiration date: 12-12-20 *(One year from date of issuance unless district indicates otherwise.)*

Authorized signature: _____ Print name: BLAIR A. KNOLL

Print title: SENIOR CIVIL ENGINEER Phone: _____

NOTE: THIS DOCUMENT IS NOT A COMMITMENT OF SERVICE OR FACILITIES BY THE DISTRICT. On completion of Section 2 by the district, applicant is to submit this form with application to the Zoning Counter at the Planning & Community Development Dept., 505 S. Vulcan Ave., Encinitas, CA 92024

DPLF399W(Rev.A/12/91)

APPENDIX S FIRE PROTECTION PLAN EXEMPTION LETTER

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PASCO LARET SUITER
& ASSOCIATES
CIVIL ENGINEERING + LAND PLANNING + LAND SURVEYING

December 17, 2019

City of Encinitas
505 South Vulcan Avenue
Encinitas, CA 92024

RE: FIRE PROTECTION PLAN EXEMPTION FOR FOX POINT FARMS

To whom it may concern,

For reasons contained in this letter, it is our professional opinion that a Fire Protection Plan will not be required for the development of Fox Point Farms as it is currently designed.

The site is currently surrounded by single family development to the west and south. A single family home and golf course border the site to the east. And an open space preserve borders the site to the north. Because the is surrounded by developed property along the west, south and east, those borders do not require fuel modification zones. The northern 313' ± of the site is proposed to be used for agricultural purposes and would include irrigated farm fields. There are no residential structures proposed within this agricultural area. Additionally, while there are several structures proposed to serve the agricultural use, these structures are more than 150' from the northern property line and extend far beyond the typical 100' fuel modification zone.

Please do not hesitate to contact me with any questions or requests for additional information. Thank you for your consideration.

Sincerely,

Tyler Lawson, PE
Associate Principal
Pasco Laret Suiter & Associates