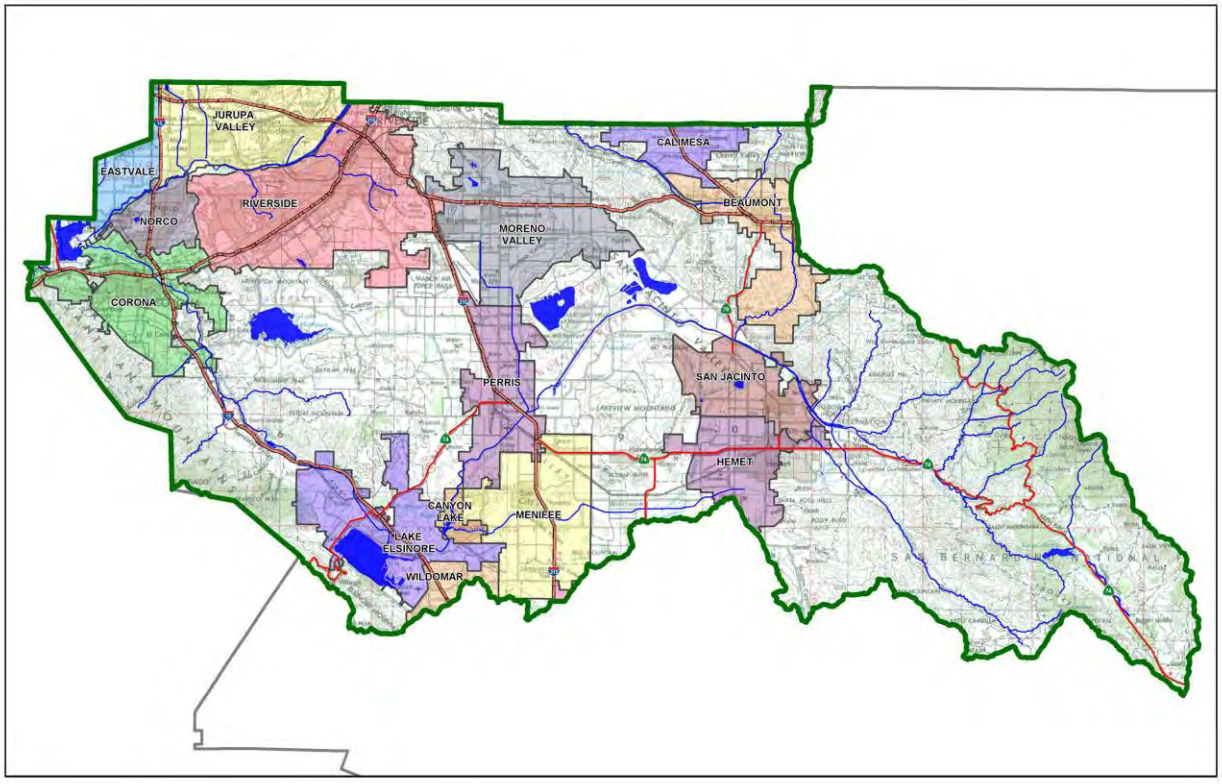
Project Specific Water Quality Management Plan

*A Template for Projects located within the **Santa Ana Watershed** Region of Riverside County*

Project Title: Chacon Farms

Development No: Tentative Tract 39076

Design Review/Case No: PWQMP23-00002, PROJ23-0029



☒ **Preliminary**
☐ **Final**

Original Date Prepared: October 30, 2024

Revision Date(s): July 21, 2025

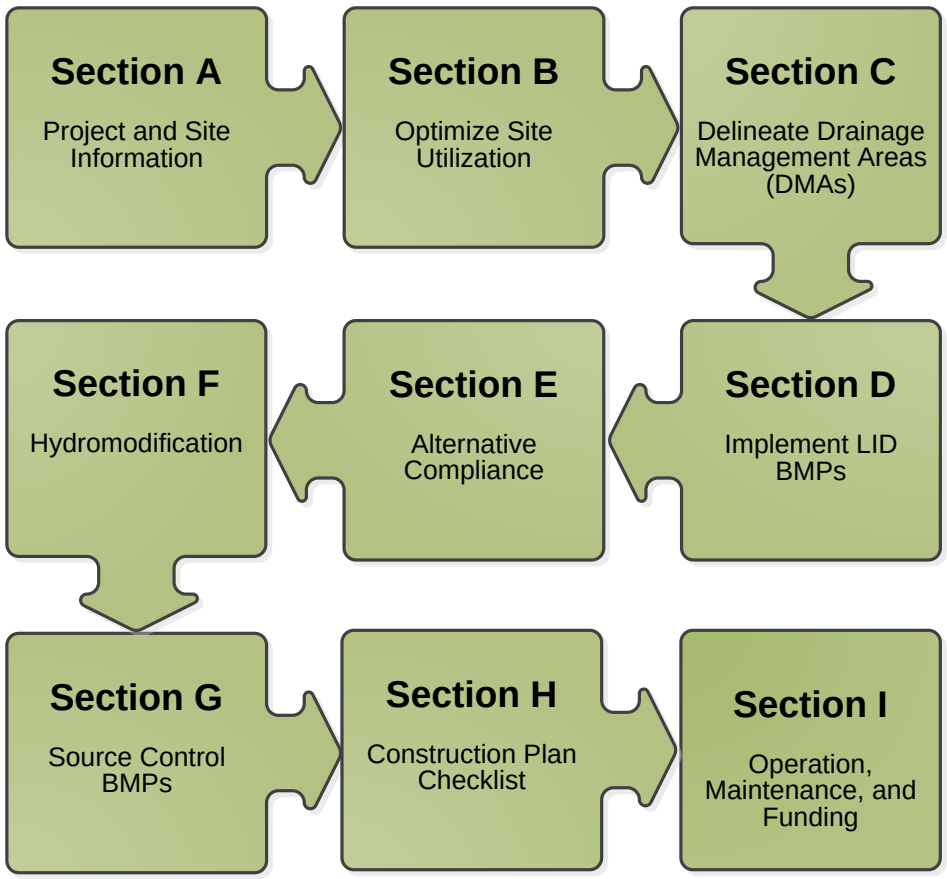
Prepared for Compliance with
Regional Board Order No. **R8-2010-0033**
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A Brief Introduction

This Project-Specific WQMP Template for the **Santa Ana Region** has been prepared to help guide you in documenting compliance for your project. Because this document has been designed to specifically document compliance, you will need to utilize the WQMP Guidance Document as your "how-to" manual to help guide you through this process. Both the Template and Guidance Document go hand-in-hand, and will help facilitate a well prepared Project-Specific WQMP. Below is a flowchart for the layout of this Template that will provide the steps required to document compliance.



OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for Ramona Dairy LLC by Blaine Womer Civil Engineering for the Chacon Farms project, Tentative Tract Map 39076 (PROJ23-0029).

This WQMP is intended to comply with the requirements of City of San Jacinto Ordinance No. 13.44 which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under City of San Jacinto Water Quality Ordinance (Municipal Code Section 13.44).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Pending Approval
Owner's Signature

Date

Owner's Printed Name

Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. **R8-2010-0033** and any subsequent amendments thereto."

Blaine Womer
Preparer's Signature

July 21, 2025
Date

Blaine Womer
Preparer's Printed Name

President
Preparer's Title/Position

Preparer's Licensure: RCE 46354
Expiration: 12/31/2026

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Section A: Project and Site Information

PROJECT INFORMATION	
Type of Project:	Residential
Planning Area:	N/A
Community Name:	San Jacinto
Development Name:	Tentative Tract 39076
PROJECT LOCATION	
Latitude & Longitude (DMS): 33◦46'35N, -117◦01'03"W	
Project Watershed and Sub-Watershed: Watershed: San Ana River	
Sub-Watershed: San Jacinto Valley	
Gross Acres: 75.70	
APN(s): 432-260-009, 026, 027	
Map Book and Page No.: East ½ Farm Lot 161, MB 8/357	
PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Single Family Residential
Proposed or Potential SIC Code(s)	N/A
Area of Impervious Project Footprint (SF)	1,719,665
Total Area of proposed Impervious Surfaces within the Project Footprint (SF)/or Replacement	1,719,665
Does the project consist of offsite road improvements?	☐ Y ☒ N
Does the project propose to construct unpaved roads?	☐ Y ☒ N
Is the project part of a larger common plan of development (phased project)?	☐ Y ☒ N
EXISTING SITE CHARACTERISTICS	
Total area of existing Impervious Surfaces within the Project limits Footprint (SF)	41,407
Is the project located within any MSHCP Criteria Cell?	☐ Y ☒ N
If so, identify the Cell number:	N/A
Are there any natural hydrologic features on the project site?	☐ Y ☒ N
Is a Geotechnical Report attached?	☒ Y ☐ N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	N/A
What is the Water Quality Design Storm Depth for the project?	0.70

Narrative: Tentative Tract 39076 is a 417-lot single family subdivision on 75.7 acres, located at the northwest corner of Cawston Avenue and Esplanade Avenue in the City of San Jacinto. Lot sizes within the subdivision range from a minimum of 4,500 sf to 6,700 sf. The proposed impervious area, post development will be 1,719,665 sf. The impervious area consists of roofs, asphalt, concrete, concrete sidewalks and driveways. The natural drainage pattern for the property is northwest. Project grading has been primarily designed to honor the natural drainage pattern. Individual lots will drain via vegetated swales to the transferring streets. Street drainage is directed to onsite bioretention basins for treatment. Stormwater flow in excess of the bioretention basin capacities will be intercepted by an onsite storm drain and diverted to an onsite retention basin. The basin has been sized to retain in excess of the volumetric difference between the developed and undeveloped condition for the 100-year, 24-hour storm event. The project proposes private streets and will establish a HOA for perpetual maintenance.

A.1 Maps and Site Plans

When completing your Project-Specific WQMP, include a map of the local vicinity and existing site. In addition, include all grading, drainage, landscape/plant palette and other pertinent construction plans in Appendix 2. At a **minimum**, your WQMP Site Plan should include the following:

- Drainage Management Areas
- Proposed Structural BMPs
- Drainage Path
- Drainage Infrastructure, Inlets, Overflows
- Source Control BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces
- Standard Labeling
- BMP Locations (Lat/Long)

Use your discretion on whether or not you may need to create multiple sheets or can appropriately accommodate these features on one or two sheets. Keep in mind that the Co-Permittee plan reviewer must be able to easily analyze your project utilizing this template and its associated site plans and maps.

Appendix 1 includes the following:

- Vicinity Map, A-1
- Regional Waters Map, A-2
- Drainage Area Map, A-3
- Post Construction BMP Site Plan, A-4

A.2 Identify Receiving Waters

Using Table A.1 below, list in order of upstream to downstream, the receiving waters that the project site is tributary to. Continue to fill each row with the Receiving Water's 303(d) listed impairments (if any), designated beneficial uses, and proximity, if any, to a RARE beneficial use. Include a map of the receiving waters in Appendix 1.

Table A.1 Identification of Receiving Waters

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
San Jacinto River Reach 5	None	AGR-GWR-REC1-REC2-WARM-WILD	Not designated as RARE
San Jacinto River Reach 4	None	AGR-GWR-REC1-REC2-WARM-WILD	Not designated as RARE
Canyon Lake	Pathogens, Nutrients	MUN-AGR-GWR-REC1-REC2-WARM-WILD	Not designated as RARE
Lake Elsinore	Nutrients, PCB's, Organic Enrichment/ Dissolved Oxygen, Sediment Toxicity, Unknown Toxicity	REC-1-REC2-WARM-WILD	Not designated as RARE

A.3 Additional Permits/Approvals required for the Project:

Table A.2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	☐ Y	☒ N
US Army Corps of Engineers, CWA Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☒ Y	☐ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)*	☐ Y	☐ N

If yes is answered to any of the questions above, the Co-Permittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Section B: Optimize Site Utilization (LID Principles)

Review of the information collected in Section 'A' will aid in identifying the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, constraints might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. Opportunities might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for bioretention BMPs), and differences in elevation (which can provide hydraulic head). Prepare a brief narrative for each of the site optimization strategies described below. This narrative will help you as you proceed with your LID design and explain your design decisions to others.

The 2010 Santa Ana MS4 Permit further requires that LID Retention BMPs (Infiltration Only or Harvest and Use) be used unless it can be shown that those BMPs are infeasible. Therefore, it is important that your narrative identify and justify if there are any constraints that would prevent the use of those categories of LID BMPs. Similarly, you should also note opportunities that exist which will be utilized during project design. Upon completion of identifying Constraints and Opportunities, include these on your WQMP Site plan in Appendix 1.

Consideration of "highest and best use" of the discharge should also be considered. For example, Lake Elsinore is evaporating faster than runoff from natural precipitation can recharge it. Requiring infiltration of 85% of runoff events for projects tributary to Lake Elsinore would only exacerbate current water quality problems associated with Pollutant concentration due to lake water evaporation. In cases where rainfall events have low potential to recharge Lake Elsinore (i.e. no hydraulic connection between groundwater to Lake Elsinore, or other factors), requiring infiltration of Urban Runoff from projects is counterproductive to the overall watershed goals. Project proponents, in these cases, would be allowed to discharge Urban Runoff, provided they used equally effective filtration-based BMPs.

Site Optimization

The following questions are based upon Section 3.2 of the WQMP Guidance Document. Review of the WQMP Guidance Document will help you determine how best to optimize your site and subsequently identify opportunities and/or constraints, and document compliance.

Did you identify and preserve existing drainage patterns? If so, how? If not, why?

Yes, existing drainage patterns have been honored through site grading.

Did you identify and protect existing vegetation? If so, how? If not, why?

Previous active agriculture use. No existing vegetation to protect.

Did you identify and preserve natural infiltration capacity? If so, how? If not, why?

Through site specific testing, it was determined that the site does not have natural infiltration capacity. Infiltration rates varied between 0.1 to 0.6 inches per hour.

Did you identify and minimize impervious area? If so, how? If not, why?

To the greatest extent possible for the type of development.

Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

Stormwater runoff is directed to onsite bioretention basins for treatment.

Section C: Delineate Drainage Management Areas (DMAs)

Utilizing the procedure in Section 3.3 of the WQMP Guidance Document which discusses the methods of delineating and mapping your project site into individual DMAs, complete Table C.1 below to appropriately categorize the types of classification (e.g., Type A, Type B, etc.) per DMA for your project site. Upon completion of this table, this information will then be used to populate and tabulate the corresponding tables for their respective DMA classifications.

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s)[1][2]	Area (Sq. Ft.)	DMA Type
D/1	Roof	336,831	Drains to BMP
D/2	Asphalt	260,534	Drains to BMP
D/3	Concrete	135,765	Drains to BMP
D/4	Landscape	495,034	Drains to BMP
D/5	Roof	190,300	Drains to BMP
D/6	Asphalt	151,067	Drains to BMP
D/7	Concrete	73,905	Drains to BMP
D/8	Landscape	367,017	Drains to BMP
D/9	Roof	270,226	Drains to BMP
D/10	Asphalt	201,412	Drains to BMP
D/11	Concrete	99,625	Drains to BMP
D/12	Landscape	440,645	Drains to BMP
A/1	Landscape	95,730	Self-Treating

[1]Reference Table 2-1 in the WQMP Guidance Document to populate this column
[2]If multi-surface provide back-up

Table C.2 Type 'A', Self-Treating Areas

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
A-1	95,730	Drought Tolerant Landscape	Drip

Table C.3 Type 'B', Self-Retaining Areas

Self-Retaining Area				**Type 'C' DMAs that are draining to the Self-Retaining Area**		
DMA Name/ ID	Post-project surface type	Area (square feet) [A]	Storm Depth (inches) [B]	DMA Name / ID	[C] from Table C.4 = [C]	Required Retention Depth (inches) [D]
N/A						

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					**Receiving Self-Retaining DMA**		
DMA Name/ ID	Area (square feet) [A]	Post-project surface type	Impervious fraction [B]	Product [C] = [A] x [B]	DMA name /ID	Area (square feet) [D]	Ratio [C]/[D]
N/A							

Table C.5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
D/1	Bioretention Basin No. 1
D/2	Bioretention Basin No. 1
D/3	Bioretention Basin No. 1
D/4	Bioretention Basin No. 1
D/5	Bioretention Basin No. 2
D/6	Bioretention Basin No. 2
D/7	Bioretention Basin No. 2
D/8	Bioretention Basin No. 2
D/9	Bioretention Basin No. 3
D/10	Bioretention Basin No. 3
D/11	Bioretention Basin No. 3
D/12	Bioretention Basin No. 3

Note: More than one drainage management area can drain to a single LID BMP, however, one drainage management area may not drain to more than one BMP.

Section D: Implement LID BMPs

D.1 Infiltration Applicability

Is there an approved downstream 'Highest and Best Use' for stormwater runoff (see discussion in Chapter 2.4.4 of the WQMP Guidance Document for further details)? ☐ Y ☒ N

If yes has been checked, Infiltration BMPs shall not be used for the site; proceed to section D.3

If no, continue working through this section to implement your LID BMPs. It is recommended that you contact your Co-Permittee to verify whether or not your project discharges to an approved downstream 'Highest and Best Use' feature.

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Copermittee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Co-Permittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the WQMP Guidance Document. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? ☐ Y ☒ N

Infiltration Feasibility

Table D.1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the WQMP Guidance Document in Chapter 2.4.5. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D.1 Infiltration Feasibility

Does the project site…	YES	NO
…have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet of a water supply well?		X
If Yes, list affected DMAs:		
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		X
If Yes, list affected DMAs:		
…have measured in-situ infiltration rates of less than 1.6 inches / hour?	X	
If Yes, list affected DMAs: All		
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
…geotechnical report identify other site-specific factors that would preclude effective and safe infiltration?		X
Describe here:		

If you answered "Yes" to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs and you should proceed to the assessment for Harvest and Use below.

D.2 Harvest and Use Assessment

Please check what applies*:*

☒ Reclaimed water will be used for the non-potable water demands for the project.

☐Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Copermittee).

☐The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the Design Capture Volume will be infiltrated or evapotranspired.

If any of the above boxes have been checked, Harvest and Use BMPs need not be assessed for the site. If none of the above criteria applies, follow the steps below to assess the feasibility of irrigation use, toilet use and other non-potable uses (e.g., industrial use).

Irrigation Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.

Total Area of Irrigated Landscape: Insert Area (Acres)

Type of Landscaping (Conservation Design or Active Turf): List Landscaping Type

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: Insert Area (Acres)

Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-3 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).

Enter your EIATIA factor: EIATIA Factor

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.

Minimum required irrigated area: Insert Area (Acres)

Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)
Insert Area (Acres)	Insert Area (Acres)

Toilet Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shut downs or other lapses in occupancy:

Projected Number of Daily Toilet Users: Number of daily Toilet Users

Project Type: Enter 'Residential', 'Commercial', 'Industrial' or 'Schools'

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: Insert Area (Acres)

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-2 in Chapter 2 to determine the minimum number or toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: TUTIA Factor

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

Minimum number of toilet users: Required number of toilet users

Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required Toilet Users (Step 4)	**Projected number of toilet users (Step 1)**
Insert Area (Acres)	Insert Area (Acres)

Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

Insert narrative description here.

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the wet season and accounting for any periodic shut downs or other lapses in occupancy or operation.

Average Daily Demand: Projected Average Daily Use (gpd)

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: Insert Area (Acres)

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-4 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

Enter the factor from Table 2-4: Enter Value

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of gallons per day of non-potable use that would be required.

Minimum required use: Minimum use required (gpd)

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the projected average daily use (Step 1) to the minimum required non-potable use (Step 4).

Minimum required non-potable use (Step 4)	**Projected average daily use (Step 1)**
Minimum use required (gpd)	Projected Average Daily Use (gpd)

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment per Section 3.4.2 of the WQMP Guidance Document.

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.4.7 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

Select one of the following:

☒ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

D.4 Feasibility Assessment Summaries

From the Infiltration, Harvest and Use, Bioretention and Biotreatment Sections above, complete Table D.2 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
D/1	☐	☐	☒	☐	☐
D/2	☐	☐	☒	☐	☐
D/3	☐	☐	☒	☐	☐
D/4	☐	☐	☒	☐	☐
D/5	☐	☐	☒	☐	☐
D/6	☐	☐	☒	☐	☐
D/7	☐	☐	☒	☐	☐
D/8	☐	☐	☒	☐	☐
D/9	☐	☐	☒	☐	☐
D/10	☐	☐	☒	☐	☐
D/11	☐	☐	☒	☐	☐
D/12	☐	☐	☒	☐	☐

For those DMAs where LID BMPs are not feasible, provide a brief narrative below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section E below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

Insert narrative description here. N/A

D.5 LID BMP Sizing

Each LID BMP must be designed to ensure that the Design Capture Volume will be addressed by the selected BMPs. First**,** calculate the Design Capture Volume for each LID BMP using the V_{BMP} worksheet in Appendix F of the LID BMP Design Handbook. Second**,** design the LID BMP to meet the required V_{BMP} using a method approved by the Copermittee. Utilize the worksheets found in the LID BMP Design Handbook or consult with your Copermittee to assist you in correctly sizing your LID BMPs. Complete Table D.3 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

Table D.3 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Bioretention Basin No. 1*		
	[A]		[B]	[C]	[A] x [C]			
D/1	*336,831*	*Roof*	*1.0*	*0.89*	*300,453.3*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
D/2	*260,534*	*Asphalt*	*1.0*	*0.89*	*232,396.3*			
D/3	*135,765*	*Concrete*	*1.0*	*0.89*	*121,102.4*			
D/4	*495,034*	*Landscape*	*0.1*	*0.11*	*54,680.5*			
	1,228,164				708,632.5	0.70	41,336.9	***41400***

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Table D.4 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Bioretention Basin No. 2*		
	[A]		[B]	[C]	[A] x [C]			
D/5	*190,300*	*Roof*	*1.0*	*0.89*	*169,747.6*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
D/6	*151,067*	*Asphalt*	*1.0*	*0.89*	*134,751.8*			
D/7	*73,905*	*Concrete*	*1.0*	*0.89*	*65,923.3*			
D/8	*367,017*	*Landscape*	*0.1*	*0.11*	*40,540*			
	782,289				410,962.7	0.70	23,972.8	***24000***

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Table D.5 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Bioretention Basin No. 3*		
	[A]		[B]	[C]	[A] x [C]			
D/9	*270,226*	*Roof*	*1.0*	*0.89*	*241,041.6*			
D/10	*201,412*	*Asphalt*	*1.0*	*0.89*	*179,659.5*			
D/11	*99,625*	*Concrete*	*1.0*	*0.89*	*88,865.5*			
D/12	*440,645*	*Landscape*	*0.1*	*0.11*	*48,672.8*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	1,011,908				558,239.4	0.70	32,564	***32600***

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Section E: Alternative Compliance (LID Waiver Program)

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Copermittee). Check one of the following Boxes:

☒ LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- *Or* -

☐ The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Co-Permittee and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

List DMAs here.

E.1 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted your project's receiving waters and their associated EPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table E.1 below. If the identified General Pollutant Categories are the same as those listed for your receiving waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table E.1 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
☒ Detached Residential Development	P	N	P	P	N	P	P	P
☐ Attached Residential Development	P	N	P	P	N	P	P	P(2)
☐ Commercial/Industrial Development	P(3)	P	P(1)	P(1)	P(5)	P(1)	P	P
☐ Automotive Repair Shops	N	P	N	N	P(4, 5)	N	P	P
☐ Restaurants (>5,000 ft^2)	P	N	N	N	N	N	P	P
☐ Hillside Development (>5,000 ft^2)	P	N	P	P	N	P	P	P
☐ Parking Lots (>5,000 ft^2)	P(6)	P	P(1)	P(1)	P(4)	P(1)	P	P
☐ Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	☒	☐	☒	☐	☒	☒	☐	☐

P = Potential

N = Not Potential

(1) A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected

(2) A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

(3) A potential Pollutant is land use involving animal waste

(4) Specifically petroleum hydrocarbons

(5) Specifically solvents

(6) Bacterial indicators are routinely detected in pavement runoff

E.2 Stormwater Credits

Projects that cannot implement LID BMPs but nevertheless implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A.

Table E.2 Water Quality Credits

Qualifying Project Categories	Credit Percentage[2]
N/A	
Total Credit Percentage[1]	

[1]*Cannot Exceed 50%*

[2]*Obtain corresponding data from Table 3-8 in the WQMP Guidance Document*

E.3 Sizing Criteria

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information.

Table E.3 Treatment Control BMP Sizing

DMA Type/ID	**DMA Area (square feet)**	**Post-Project Surface Type**	**Effective Impervious Fraction, I_f**	**DMA Runoff Factor**	**DMA Area x Runoff Factor**		***Enter BMP Name / Identifier Here***		
	[A]		[B]	[C]	[A] x [C]				
N/A						*Design Storm Depth (in)*	*Minimum Design Capture Volume or Design Flow Rate (cubic feet or cfs)*	*Total Storm Water Credit % Reduction*	*Proposed Volume or Flow on Plans (cubic feet or cfs)*
	A_T = Σ[A]				Σ= [D]	[E]	$[F] = \frac{[D]x[E]}{[G]}$	[F] X (1-[H])	[I]

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document

[E] is for Flow-Based Treatment Control BMPs [E] = .2, for Volume-Based Control Treatment BMPs, [E] obtained from Exhibit A in the WQMP Guidance Document

[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12

[H] is from the Total Credit Percentage as Calculated from Table E.2 above

[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

E.4 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- **High**: equal to or greater than 80% removal efficiency
- **Medium**: between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table E.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID[1]	Priority Pollutant(s) of Concern to Mitigate[2]	Removal Efficiency Percentage[3]
N/A		

[1] Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.
[2] Cross Reference Table E.1 above to populate this column.
[3] As documented in a Co-Permittee Approved Study and provided in Appendix 6.

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

Once you have determined that the LID design is adequate to address water quality requirements, you will need to assess if the proposed LID Design may still create a HCOC. Review Chapters 2 and 3 (including Figure 3-7) of the WQMP Guidance Document to determine if your project must mitigate for Hydromodification impacts. If your project meets one of the following criteria which will be indicated by the check boxes below, you do not need to address Hydromodification at this time. However, if the project does not qualify for Exemptions 1, 2 or 3, then additional measures must be added to the design to comply with HCOC criteria. This is discussed in further detail below in Section F.2.

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The Copermittee has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply.

HCOC EXEMPTION 2: The volume and time of concentration[1] of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the Co-Permittee

Does the project qualify for this HCOC Exemption? ☒ Y ☐ N

If Yes, report results in Table F.1 below and provide your substantiated hydrologic analysis in Appendix 7.

Table F.1 Hydrologic Conditions of Concern Summary

	2 year – 24 hour		
	Pre-condition	**Post-condition**	**% Difference**
Time of Concentration	INSERT VALUE	INSERT VALUE	INSERT VALUE
Volume (Cubic Feet)	INSERT VALUE	INSERT VALUE	INSERT VALUE

[1] Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (for example, Prado Dam, Lake Elsinore, Canyon Lake, Santa Ana River, or other lake, reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Susceptibility Maps.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply and note below which adequate sump applies to this HCOC qualifier:

INSERT TEXT HERE

F.2 HCOC Mitigation

If none of the above HCOC Exemption Criteria are applicable, HCOC criteria is considered mitigated if they meet one of the following conditions:

a. Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.

b. The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.

c. Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant, if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.

Be sure to include all pertinent documentation used in your analysis of the items a, b or c in Appendix 7.

The project is outside of the HCOC exempt area as shown on the HCOC Applicability Map on the Riverside County Flood Control and Water Conservation District website.

*The subject project will retain on-site the 2-year, 24-hour developed condition runoff volume to mitigate HCOC. See hydrograph calculations and HCOC Applicability Map in Appendix 7.

Section G: Source Control BMPs

Source control BMPs include permanent, structural features that may be required in your project plans — such as roofs over and berms around trash and recycling areas — and Operational BMPs, such as regular sweeping and "housekeeping", that must be implemented by the site's occupant or user. The MEP standard typically requires both types of BMPs. In general, Operational BMPs cannot be substituted for a feasible and effective permanent BMP. Using the Pollutant Sources/Source Control Checklist in Appendix 8, review the following procedure to specify Source Control BMPs for your site:

1. ***Identify Pollutant Sources*:** Review Column 1 in the Pollutant Sources/Source Control Checklist. Check off the potential sources of Pollutants that apply to your site.

2. ***Note Locations on Project-Specific WQMP Exhibit*:** Note the corresponding requirements listed in Column 2 of the Pollutant Sources/Source Control Checklist. Show the location of each Pollutant source and each permanent Source Control BMP in your Project-Specific WQMP Exhibit located in Appendix 1.

3. ***Prepare a Table and Narrative*:** Check off the corresponding requirements listed in Column 3 in the Pollutant Sources/Source Control Checklist. In the left column of Table G.1 below, list each potential source of runoff Pollutants on your site (from those that you checked in the Pollutant Sources/Source Control Checklist). In the middle column, list the corresponding permanent, Structural Source Control BMPs (from Columns 2 and 3 of the Pollutant Sources/Source Control Checklist) used to prevent Pollutants from entering runoff. **Add additional narrative** in this column that explains any special features, materials or methods of construction that will be used to implement these permanent, Structural Source Control BMPs.

4. ***Identify Operational Source Control BMPs:*** To complete your table, refer once again to the Pollutant Sources/Source Control Checklist. List in the right column of your table the Operational BMPs that should be implemented as long as the anticipated activities continue at the site. Copermittee stormwater ordinances require that applicable Source Control BMPs be implemented; the same BMPs may also be required as a condition of a use permit or other revocable Discretionary Approval for use of the site.

Table G.1 Permanent and Operational Source Control Measures

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
On-site Storm Drain Inlets	Mark all inlets with the words "only rain down the storm drain"	Maintain and periodically repaint or replace inlet markings. Provide stormwater pollution prevention information to new site owners, lessees, or operators.
Landscape/Outdoor Pesticide Use	Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate and to minimize the use of fertilizers and pesticides	Maintain landscaping using minimum or no pesticides. Provide IPM information to new owners, lessees and operators.

	that can contribute to stormwater pollution. Consider using pest-resistant plants, especially adjacent to hardscape. To ensure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency and plant interactions.	
Rooftop Equipment	Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment. Avoid roofing, gutters and trim made of copper or other unprotected metals that may leach into runoff.	

Section H: Construction Plan Checklist

Populate Table H.1 below to assist the plan checker in an expeditious review of your project. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)	BMP Location (Lat/Long)
1	Bioretention Basin No. 1	Tentative Tract Map Sheet 2	33◦46’45”N/117◦01’07”W
2	Bioretention Basin No. 2	Tentative Tract Map Sheet 3	33◦46’35”N/117◦01’05”W
3	Bioretention Basin No. 3	Tentative Tract Map Sheet 4	33◦46’27”N/117◦01’05”W

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. Co-Permittee staff can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

Section I: Operation, Maintenance and Funding

The Copermittee will periodically verify that Stormwater BMPs on your site are maintained and continue to operate as designed. To make this possible, your Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance. Include a brief description of typical landscape maintenance for these areas.

Your local Co-Permittee will also require that you prepare and submit a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a Stormwater BMP Operation and Maintenance Plan are in Chapter 5 of the WQMP Guidance Document.

Maintenance Mechanism: City CFD

Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

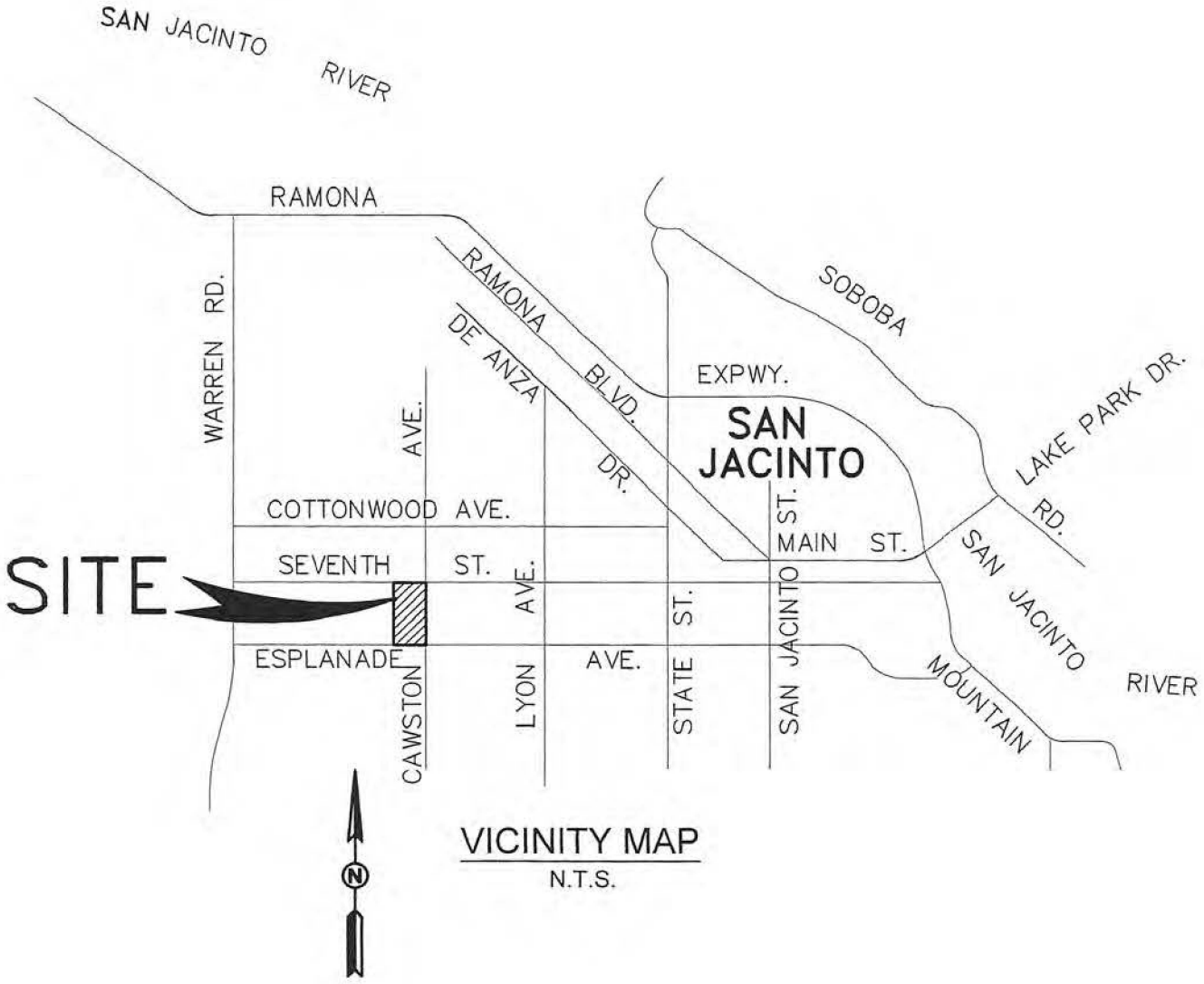
☐ Y ☒ N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

To be included in the Final WQMP.

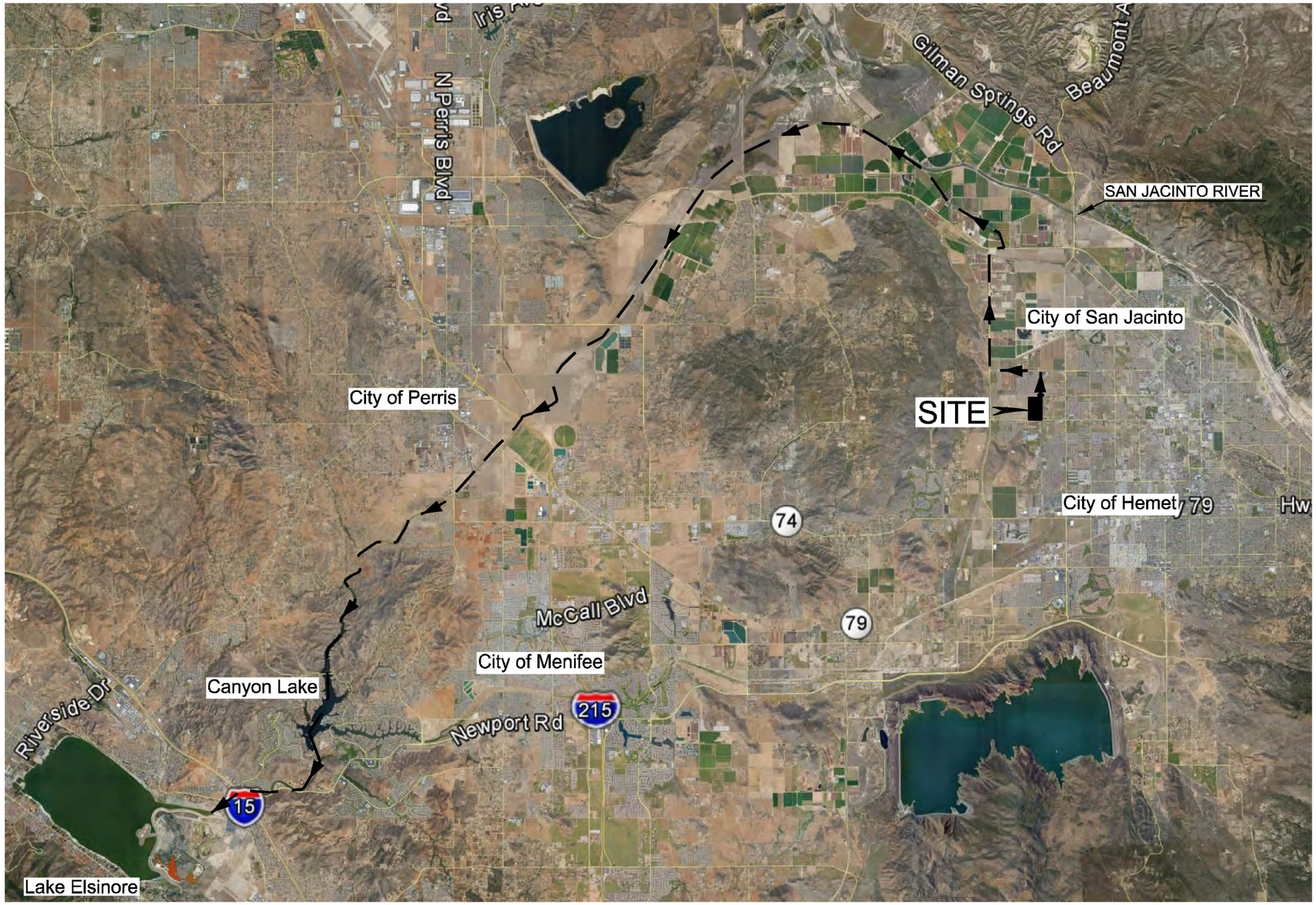
Appendix 1: Maps and Site Plans

Vicinity Map, Regional Water Map and WQMP Site Plan



VICINITY MAP

N.T.S.



WQMP EXHIBIT A-2

REGIONAL WATERS MAP

TRACT MAP NO. 39076

CITY OF SAN JACINTO, CA

R45-24-004
11/12/2024

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•SURVEYING
•CIVIL ENGINEERING
•PUBLIC WORKS

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Heber, UT 84032, 1758 S, 2340 E
Boise, ID, 83706, 4355 W Emerald Street, St. 145, Phone (208)593-7555

NORTH

0 60 120 180

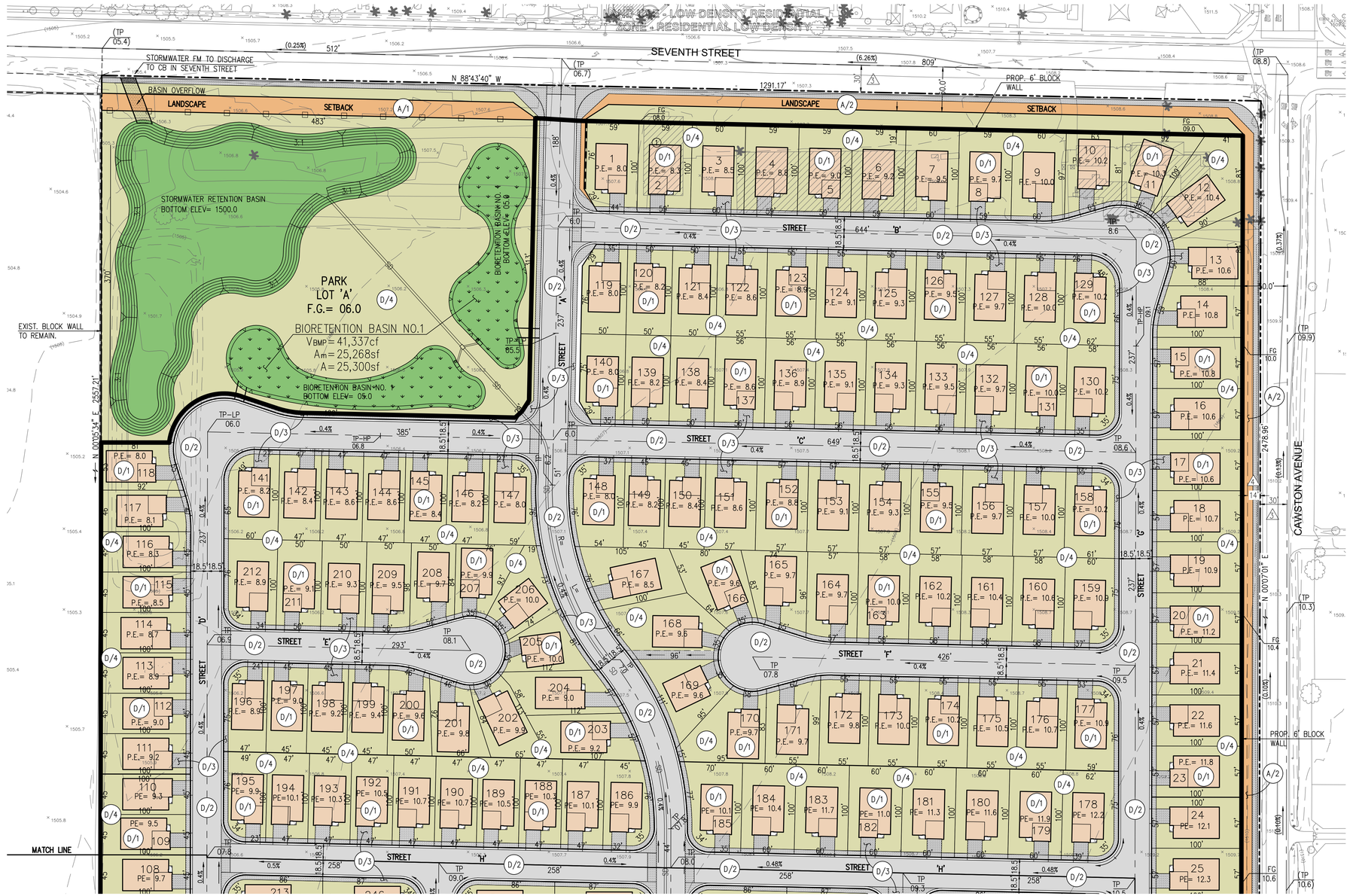
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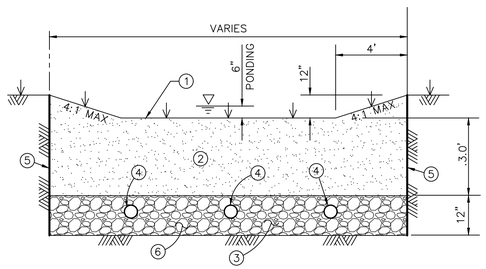
LEGEND

- —1508— INDICATES EXISTING CONTOUR
- SD INDICATES EXISTING STORM DRAIN
- INDICATES DMA BOUNDARY
- INDICATES CONCRETE SURFACE – DRAINS TO BMP
- INDICATES ROOF – DRAINS TO BMP
- INDICATES LANDSCAPE SURFACE – DRAINS TO BMP
- INDICATES ASPHALT SURFACE – DRAINS TO BMP
- INDICATES INFILTRATION BASIN
- INDICATES LANDSCAPE SURFACE – SELF TREATING

DMA SUMMARY

IDENTIFIER	AREA (SF)	SURFACE TYPE	TREATMENT
A/1	14,693	LANDSCAPE	SELF-TREATING
A/2	31,235	LANDSCAPE	SELF-TREATING
A/3	31,471	LANDSCAPE	SELF-TREATING
A/4	12,082	LANDSCAPE	SELF-TREATING
D/1	336,831	ROOF	BIORETENTION BASIN 1
D/2	260,534	ASPHALT	BIORETENTION BASIN 1
D/3	135,765	CONCRETE	BIORETENTION BASIN 1
D/4	495,034	LANDSCAPE	BIORETENTION BASIN 1
D/5	190,300	ROOF	BIORETENTION BASIN 2
D/6	151,067	ASPHALT	BIORETENTION BASIN 2
D/7	73,905	CONCRETE	BIORETENTION BASIN 2
D/8	367,017	LANDSCAPE	BIORETENTION BASIN 2
D/9	270,226	ROOF	BIORETENTION BASIN 3
D/10	201,412	ASPHALT	BIORETENTION BASIN 3
D/11	99,625	CONCRETE	BIORETENTION BASIN 3
D/12	440,645	LANDSCAPE	BIORETENTION BASIN 3





SECTION - BIORETENTION BASIN NO.1

N.T.S

NOTES

1. VEGETATIVE COVER-SPECIFICATION PER BIORETENTION FACT SHEET-WQMP.
2. ENGINEERED SOIL MEDIA-SPECIFICATION BELOW.
3. 12" GRAVEL LAYER-SPECIFICATION PER BIORETENTION FACT SHEET-WQMP.
4. 6" PERFORATED PIPE @ 5' O.C.
5. ROOT BARRIER PANELS FROM SURFACE TO BASE OF ROCK PER NDS RP SERIES OR EQUAL.
6. FILTER FABRIC, MIRAFI 140N OR EQUAL.

ENGINEERED SOIL MEDIA REQUIREMENTS

THE ENGINEERED SOIL MEDIA SHALL BE COMPRISED OF 85 PERCENT MINERAL COMPONENT AND 15 PERCENT ORGANIC COMPONENT, BY VOLUME, DRUM MIXED PRIOR TO PLACEMENT. THE MINERAL COMPONENT SHALL BE A CLASS 'A' SANDY LOAM TOPSOIL THAT MEETS THE RANGE SPECIFIED IN THE TABLE BELOW. THE ORGANIC COMPONENT SHALL BE NITROGEN STABILIZED COMPOST, SUCH THAT NITROGEN DOES NOT LEACH FROM THE MEDIA.

MINERAL COMPONENT RANGE REQUIRMENTS

PERCENT RANGE	COMPONENT
70-80	SAND
15-20	SILT
5-10	CLAY

DIG ALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

DATE	BY	MARK	REVISIONS	APPR.	DATE

ENGINEER

DESIGNED BY: DRAWN BY: CHECKED BY:

SEAL

REGISTERED PROFESSIONAL ENGINEER BLAINE A WOMER No. 46354 CIVIL STATE OF CALIFORNIA

PREPARED BY: DATE

R.C.E. NO.

BLAINE A. WOMER CIVIL ENGINEERING
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Park City, UT 84098, 5133 Cove Canyon Dr. #302
Boise, ID. 83706, 4305 W Emerald Street, St. 145, Phone (208)593-7555

SCALE 1" = 60'

DATE SEPT. 18, 2024

BENCHMARK:

CITY OF SAN JACINTO

TENTATIVE TRACT No. 39076
DRAINAGE AREA MAP
EXHIBIT A-3

FOR RAMONA DAIRY

W.O.

SHEET NO. 1 OF 3 SHEETS

FILE NO.

SEE SHEET NO. 1

NORTH

0 60 120 180

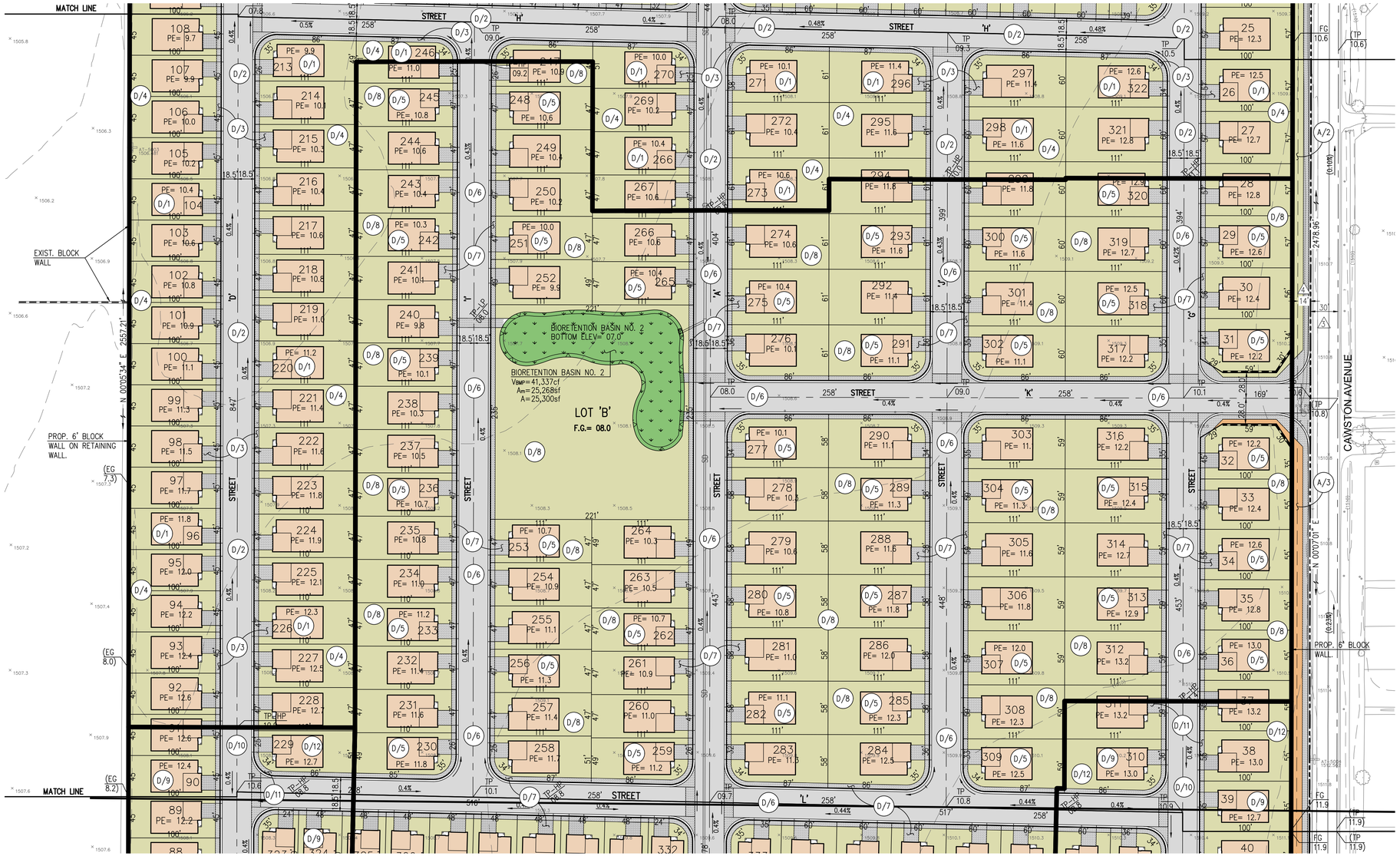
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LEGEND

- —1508— INDICATES EXISTING CONTOUR
- SD INDICATES EXISTING STORM DRAIN
- INDICATES DMA BOUNDARY
- INDICATES CONCRETE SURFACE – DRAINS TO BMP
- INDICATES ROOF – DRAINS TO BMP
- INDICATES LANDSCAPE SURFACE – DRAINS TO BMP
- INDICATES ASPHALT SURFACE – DRAINS TO BMP
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- INDICATES LANDSCAPE SURFACE – SELF TREATING

DMA SUMMARY

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D/3	135,765	CONCRETE	BIORETENTION BASIN 1
D/4	495,034	LANDSCAPE	BIORETENTION BASIN 1
D/5	190,300	ROOF	BIORETENTION BASIN 2
D/6	151,067	ASPHALT	BIORETENTION BASIN 2
D/7	73,905	CONCRETE	BIORETENTION BASIN 2
D/8	367,017	LANDSCAPE	BIORETENTION BASIN 2
D/9	270,226	ROOF	BIORETENTION BASIN 3
D/10	201,412	ASPHALT	BIORETENTION BASIN 3
D/11	99,625	CONCRETE	BIORETENTION BASIN 3
D/12	440,645	LANDSCAPE	BIORETENTION BASIN 3



SEE SHEET NO. 3

DIG ALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

DATE	BY	MARK	REVISIONS	APPR.	DATE

ENGINEER
DESIGNED BY: DRAWN BY: CHECKED BY:
CITY

SEAL
REGISTERED PROFESSIONAL ENGINEER
BLAINE A WOMER
No. 46354
CIVIL
STATE OF CALIFORNIA

PREPARED BY: DATE
R.C.E. NO.

BLAINE A. WOMER
CIVIL ENGINEERING
• PLANNING
• SURVEYING
• CIVIL ENGINEERING
• PUBLIC WORKS
Homer, CA. 92544 41555 E Florida Ave., Suite G, Phone (951)658-1727 Fax (951)658-9347
Park City, UT 84098, 5133 Cove Canyon Dr. #302
Boise, ID, 83706, 4355 W Emerald Street, St. 145, Phone (208)593-7555

SCALE 1" = 60'
DATE SEPT. 18, 2024
BENCHMARK:

CITY OF SAN JACINTO
TENTATIVE TRACT 39076
DRAINAGE AREA MAP
EXHIBIT A-3

FOR RAMONA DAIRY
W.O.

SHEET NO. 2
OF 3 SHEETS
FILE NO.

NORTH

0 60 120 180

1"=60'

LEGEND

—1508— INDICATES EXISTING CONTOUR

SD INDICATES EXISTING STORM DRAIN

INDICATES DMA BOUNDARY

INDICATES CONCRETE SURFACE – DRAINS TO BMP

INDICATES ROOF – DRAINS TO BMP

INDICATES LANDSCAPE SURFACE – DRAINS TO BMP

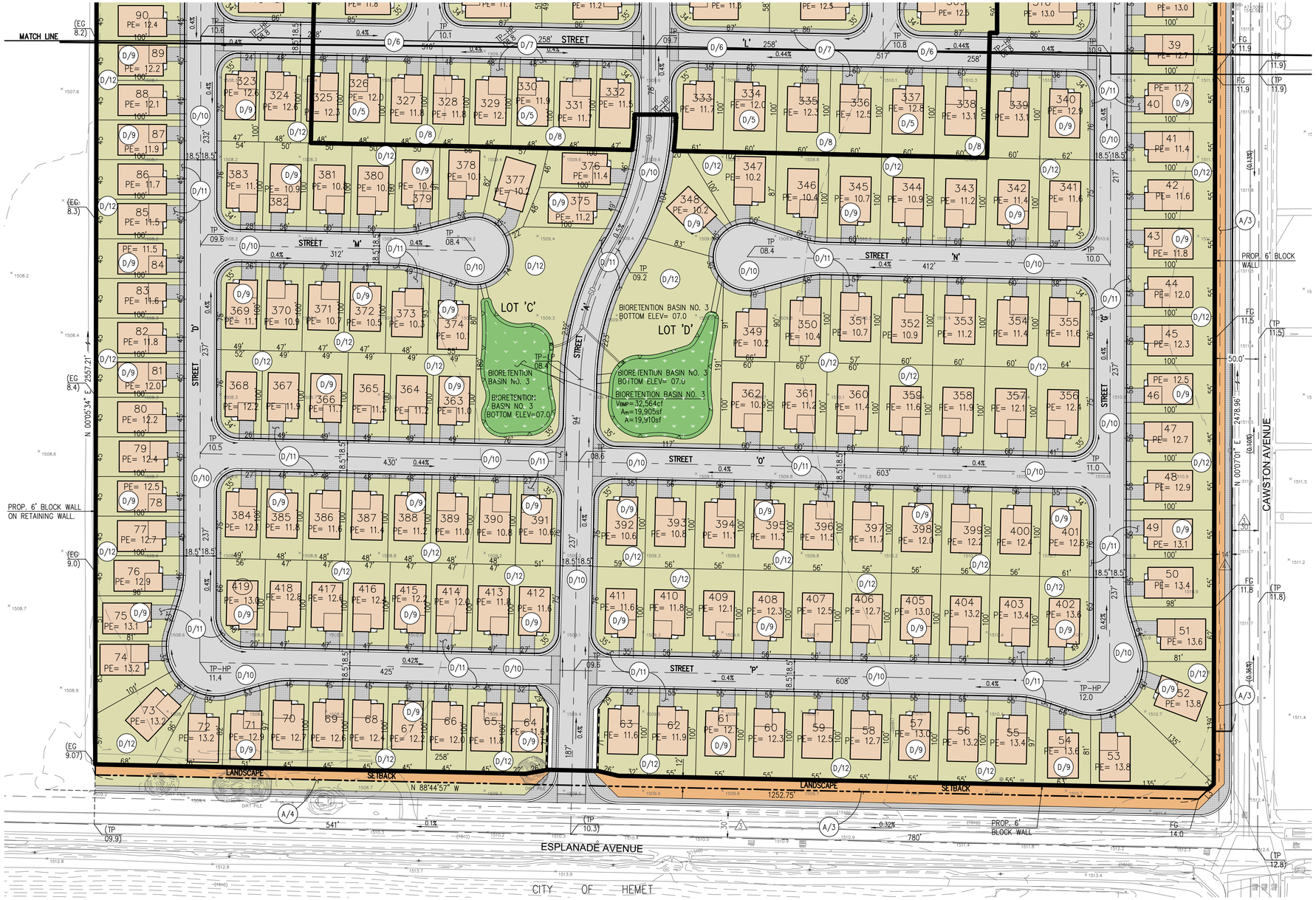
INDICATES ASPHALT SURFACE – DRAINS TO BMP

INDICATES INFILTRATION BASIN

INDICATES LANDSCAPE SURFACE – SELF TREATING

DMA SUMMARY

IDENTIFIER	AREA (SF)	SURFACE TYPE	TREATMENT
A/1	14,693	LANDSCAPE	SELF-TREATING
A/2	31,235	LANDSCAPE	SELF-TREATING
A/3	31,471	LANDSCAPE	SELF-TREATING
A/4	12,082	LANDSCAPE	SELF-TREATING
D/1	336,831	ROOF	BIORETENTION BASIN 1
D/2	260,534	ASPHALT	BIORETENTION BASIN 1
D/3	155,765	CONCRETE	BIORETENTION BASIN 1
D/4	495,034	LANDSCAPE	BIORETENTION BASIN 1
D/5	190,300	ROOF	BIORETENTION BASIN 2
D/6	151,067	ASPHALT	BIORETENTION BASIN 2
D/7	73,905	CONCRETE	BIORETENTION BASIN 2
D/8	367,017	LANDSCAPE	BIORETENTION BASIN 2
D/9	270,226	ROOF	BIORETENTION BASIN 3
D/10	201,412	ASPHALT	BIORETENTION BASIN 3
D/11	99,625	CONCRETE	BIORETENTION BASIN 3
D/12	440,645	LANDSCAPE	BIORETENTION BASIN 3



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DATE	BY	MARK		APPR.	DATE
ENGINEER			REVISIONS	CITY	

DESIGNED BY: DRAWN BY: CHECKED BY:

SEAL

REGISTERED PROFESSIONAL ENGINEER BLAINE A WOMER No. 46354 CIVIL STATE OF CALIFORNIA

PREPARED BY: DATE

R.C.E. NO.

BLAINE A. WOMER
CIVIL ENGINEERING
• PLANNING • SURVEYING • CIVIL ENGINEERING • PUBLIC WORKS
Hemet, CA 92544, 41555 E Florida Ave., Suite G. Phone (951)658-1727 Fax (951)658-9347
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SCALE 1" = 60'

DATE SEPT. 18, 2024

BENCHMARK:

CITY OF SAN JACINTO

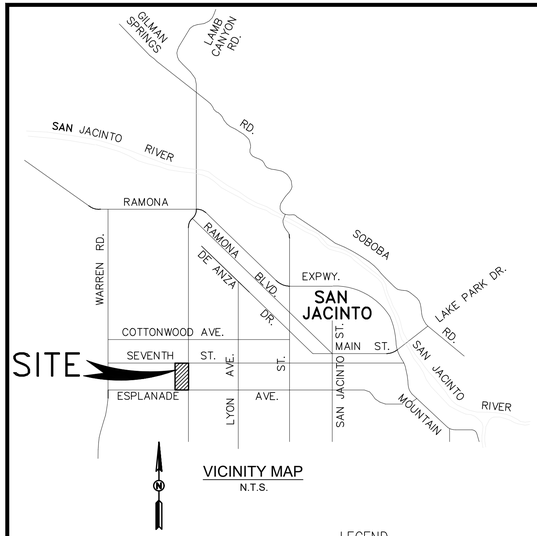
TENTATIVE TRACT 39076
DRAINAGE AREA MAP
EXHIBIT A-3

FOR RAMONA DAIRY

W.O.

SHEET NO. 3 OF 3 SHEETS

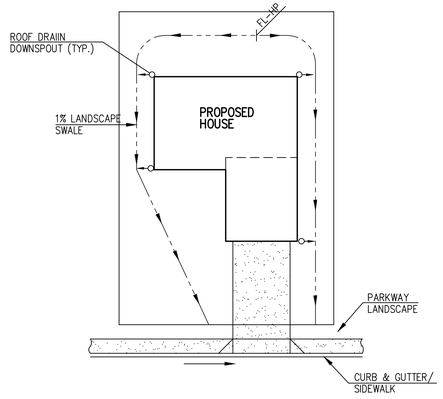
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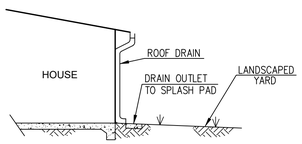
VICINITY MAP
N.T.S.

LEGEND

- INDICATES PROPOSED STORM DRAIN
- INDICATES ASPHALT SURFACE
- INDICATES BIORETENTION BASIN



TYPICAL LOT DRAINAGE / SELF-RETAINING LID
NTS



ROOF DRAIN DETAIL
NTS

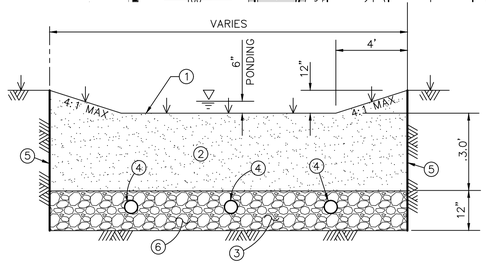
ENGINEERED SOIL MEDIA REQUIREMENTS

THE ENGINEERED SOIL MEDIA SHALL BE COMPRISED OF 85 PERCENT MINERAL COMPONENT AND 15 PERCENT ORGANIC COMPONENT, BY VOLUME, DRUM MIXED PRIOR TO PLACEMENT. THE MINERAL COMPONENT SHALL BE A CLASS 'A' SANDY LOAM TOPSOIL THAT MEETS THE RANGE SPECIFIED IN THE TABLE BELOW. THE ORGANIC COMPONENT SHALL BE NITROGEN STABILIZED COMPOST, SUCH THAT NITROGEN DOES NOT LEACH FROM THE MEDIA.

MINERAL COMPONENT RANGE REQUIRMENTS

PERCENT RANGE	COMPONENT
70-80	SAND
15-20	SILT
5-10	CLAY





SECTION - BIORETENTION BASIN NO.1
N.T.S

NOTES

1. VEGETATIVE COVER-SPECIFICATION PER BIORETENTION FACT SHEET-WQMP.
2. ENGINEERED SOIL MEDIA-SPECIFICATION BELOW.
3. 12" GRAVEL LAYER-SPECIFICATION PER BIORETENTION FACT SHEET-WQMP.
4. 6" PERFORATED PIPE @ 5' O.C.
5. ROOT BARRIER PANELS FROM SURFACE TO BASE OF ROCK PER NDS RP SERIES OR EQUAL.
6. FILTER FABRIC, MIRAFI 140N OR EQUAL.

NOTE: UNDER DRAIN TO DISCHARGE TO STORM DRAIN SYSTEM.

NOTE:
SITE IS NOT SUBJECT TO OFF-SITE RUN-ON.

NORTH

0 60 120 180

1"=60'

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1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

DATE	BY	MARK	REVISIONS	APPR.	DATE

ENGINEER | CITY
DESIGNED BY: | DRAWN BY: | CHECKED BY:

SEAL
REGISTERED PROFESSIONAL ENGINEER
BLAINE A WOMER
No. 46354
CIVIL
STATE OF CALIFORNIA

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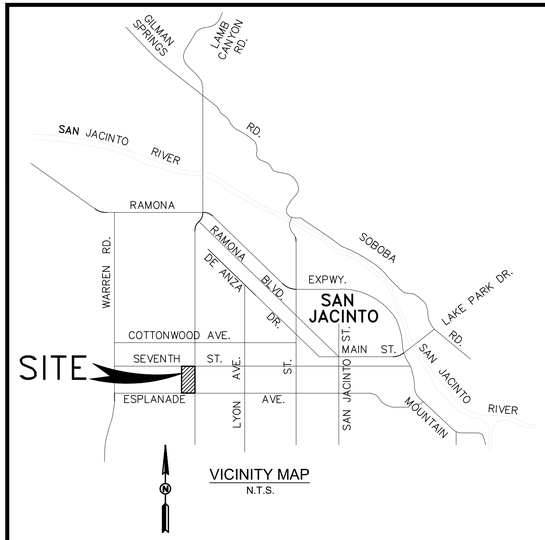
Hemet, CA. 92544, 41550 E Florida Ave., Suite G, Phone (951)658-1727 Fax (951)658-9347
Park City, UT 84098, 5133 Cove Canyon Dr. #302
Boise, ID. 83706, 4305 W Emerald Street, St. 145, Phone (208)593-7555

SCALE 1" = 60'
DATE SEPT. 18, 2024
BENCHMARK:

CITY OF SAN JACINTO
POST CONSTRUCTION BMP SITE PLAN
FOR CHACON FARMS-TRACT 39076
CAWSTON AVENUE, SAN JACINTO
PWQMP23-0002, PROJ23-0029
EXHIBIT A-4

FOR RAMONA DAIRY | W.O.

SHEET NO. 1 OF 3 SHEETS
FILE NO.



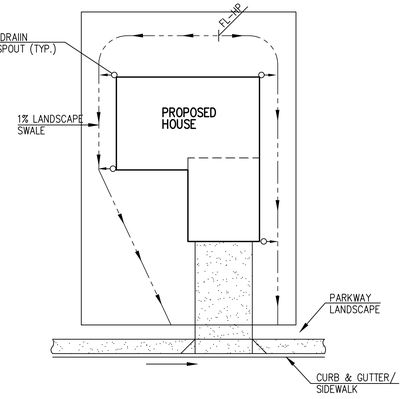
VICINITY MAP
N.T.S.

LEGEND

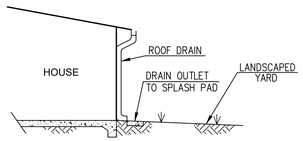
INDICATES PROPOSED STORM DRAIN

INDICATES ASPHALT SURFACE

INDICATES INFILTRATION BASIN



TYPICAL LOT DRAINAGE / SELF-RETAINING LID
NTS



ROOF DRAIN DETAIL
NTS

SEE SHEET NO. 1



SEE SHEET NO. 3

NORTH

0 60 120 180

1"=60'

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CIVIL
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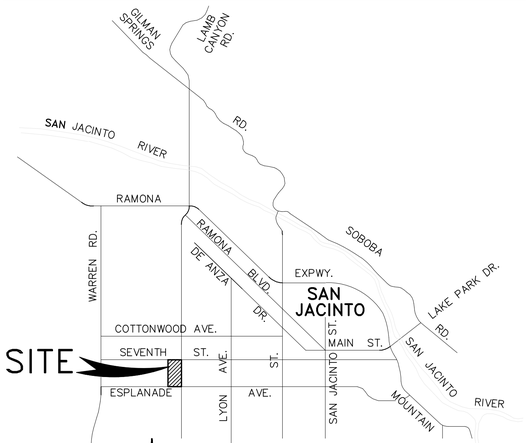
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• PUBLIC WORKS

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PWQMP23-0002, PROJ23-0029
EXHIBIT A-4
FOR RAMONA DAIRY
W.O.

SHEET NO. 2 OF 3 SHEETS
FILE NO.



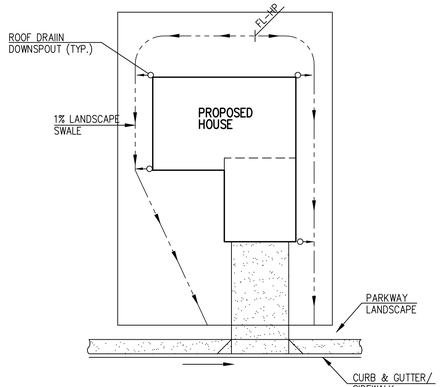
VICINITY MAP
N.T.S.

LEGEND

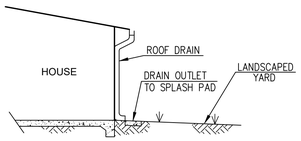
INDICATES PROPOSED STORM DRAIN

INDICATES ASPHALT SURFACE

INDICATES INFILTRATION BASIN



TYPICAL LOT DRAINAGE / SELF-RETAINING LID
NTS



ROOF DRAIN DETAIL
NTS



NORTH

0 60 120 180

1"=60'

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ENGINEER				CITY	

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SEAL
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CIVIL
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CAWSTON AVENUE, SAN JACINTO
PWQMP23-0002, PROJ23-0029

EXHIBIT A-4

FOR RAMONA DAIRY

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SHEET NO. 3 OF 3 SHEETS

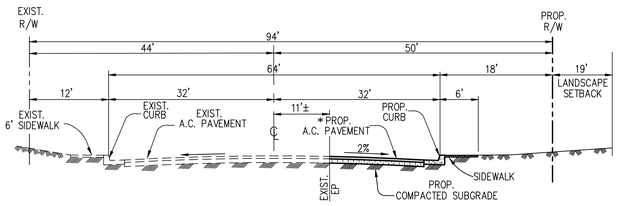
FILE NO.

Appendix 2: Construction Plans

Grading and Drainage Plans

IN THE CITY OF SAN JACINTO
TENTATIVE TRACT MAP NO. 39076

PORTION SECTION 31, TOWNSHIP 4 SOUTH, RANGE 1 WEST, S.B.M.

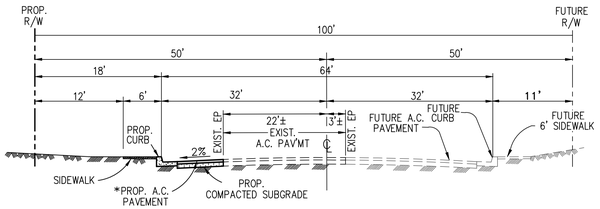


TYPICAL STREET SECTION
SEVENTH STREET - MAJOR
PUBLIC STREET

NOT TO SCALE

T.I. = 9.0

*FINAL PAVEMENT STRUCTURAL SECTION WILL BE DETERMINED BASED ON THE PROJECT GEOTECHNICAL REPORT AND THE TRAFFIC INDEX.

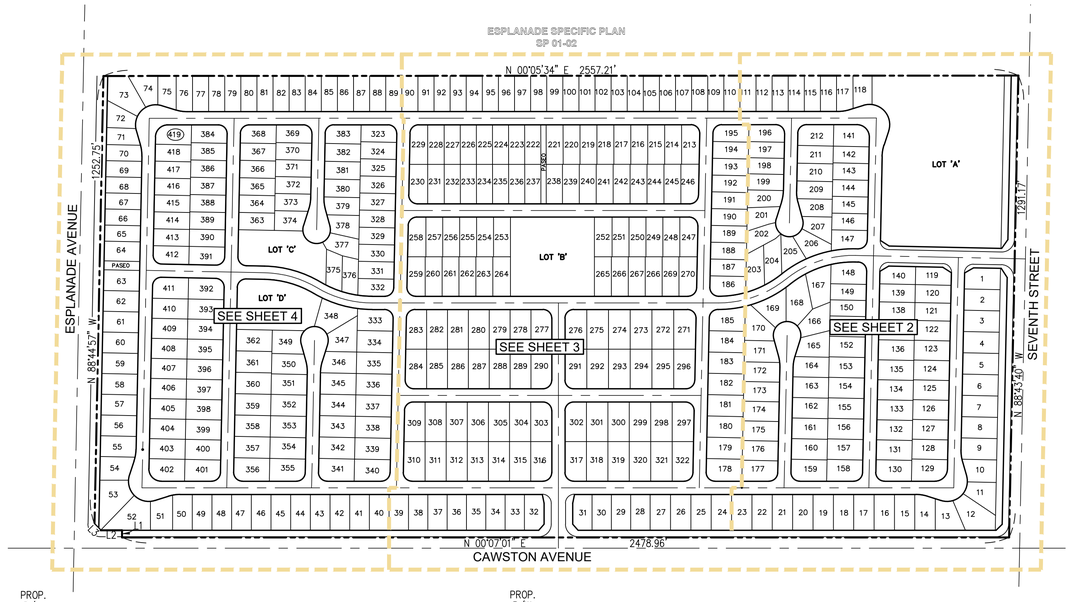


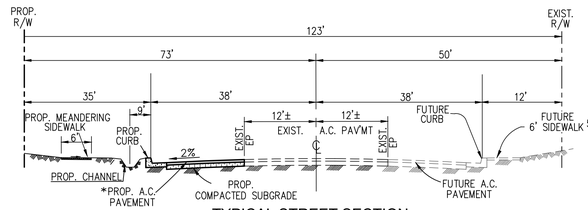
TYPICAL STREET SECTION
CAWSTON AVENUE - MAJOR
PUBLIC STREET

NOT TO SCALE

T.I. = 9.0

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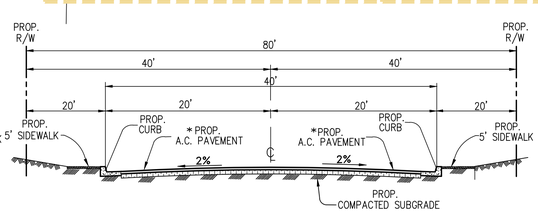


TYPICAL STREET SECTION
ESPLANADE AVENUE - ARTERIAL
PUBLIC STREET

NOT TO SCALE

T.I. = 9.5

*FINAL PAVEMENT STRUCTURAL SECTION WILL BE DETERMINED BASED ON THE PROJECT GEOTECHNICAL REPORT AND THE TRAFFIC INDEX.



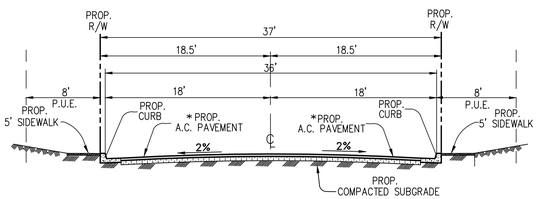
TYPICAL STREET SECTION
ENTRANCE ROADS - STREET 'K'/MODIFIED LOCAL
PRIVATE STREETS

NOT TO SCALE

T.I. = 5.5

*FINAL PAVEMENT STRUCTURAL SECTION WILL BE DETERMINED BASED ON THE PROJECT GEOTECHNICAL REPORT AND THE TRAFFIC INDEX.

PARKING RESTRICTED TO ONE SIDE ONLY



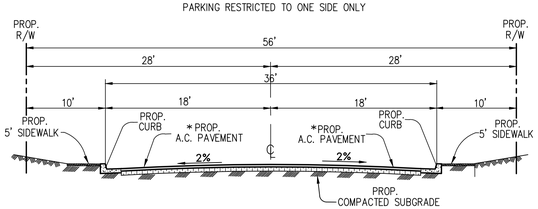
TYPICAL STREET SECTION
ROADS - MODIFIED LOCAL
PRIVATE STREETS

NOT TO SCALE

T.I. = 5.5

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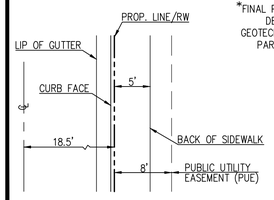
TYPICAL STREET SECTION
ENTRANCE ROADS - STREET 'A'/MODIFIED LOCAL
PRIVATE STREETS

NOT TO SCALE

T.I. = 5.5

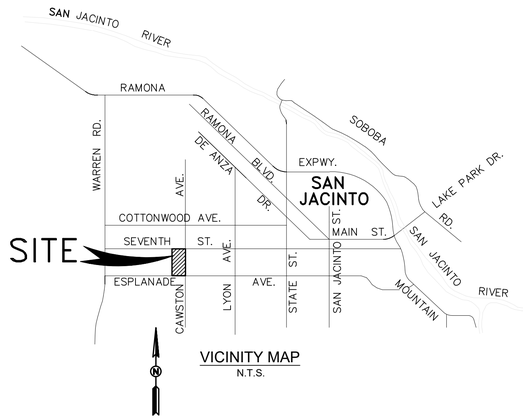
*FINAL PAVEMENT STRUCTURAL SECTION WILL BE DETERMINED BASED ON THE PROJECT GEOTECHNICAL REPORT AND THE TRAFFIC INDEX.

PARKING RESTRICTED TO ONE SIDE ONLY



PRIVATE STREET LEGEND

NTS



VICINITY MAP

N.T.S.

OWNER

TEUNIS J. DE JONG, TRUSTEE OF THE TEUNIS J. JONG TRUST.
2451 RAMONA EXPRESSWAY
SAN JACINTO, CA. 92582
907-229-2072

APPLICANT

RICHARD MICHAEL
RAMONA DAIRY
2451 RAMONA EXPRESSWAY
SAN JACINTO, CA 92582
907-229-2072
richard@homealaska.net

ASSESSOR'S PARCEL NO(S).

432-260-009, 026 AND 027

ADJACENT LAND USE

WEST – ESPLANADE SP/ESPLANADE SP
NORTH – LDR/RL
EAST – VLDR/RR
SOUTH – CITY OF HEMET/CITY OF HEMET

ZONING

RL
RL/PI
RL
RM

EXISTING LAND USE

VLDR – VERY LOW DENSITY RESIDENTIAL

PROPOSED LAND USE

LDR – LOW DENSITY RESIDENTIAL

EXISTING ZONING

RR – RURAL RESIDENTIAL

PROPOSED ZONING

RL – RESIDENTIAL LOW DENSITY

UTILITIES

SEWER	CITY OF SAN JACINTO
WATER	EASTERN MUNICIPAL WATER DISTRICT
GAS	SOUTHERN CALIFORNIA GAS COMPANY
ELECTRIC	SOUTHERN CALIFORNIA EDISON COMPANY
TELEPHONE	FRONTIER
CABLE	FRONTIER

NUMBER OF LOTS

419 SINGLE FAMILY RESIDENTIAL
4 OPEN SPACE LOTS

DENSITY

5.53 DU/AC GROSS

ACREAGE

75.70 GROSS ACRES WITHIN BOLD BOUNDARY
73.97 ACRES NET

OPEN SPACE AREA

LOT 'A': 1.77 AC
LOT 'B': 0.84 AC
LOT 'C': 0.34 AC
LOT 'D': 0.41 AC

SCHOOL DISTRICT

SAN JACINTO UNIFIED

SOURCE OF TOPOGRAPHY

AN AERIAL SURVEY BY PSOMAS DATED 10/22

FLOOD PLAIN

ZONE X PER COMMUNITY PANEL NO. 06065C1470G, DATED 8/28/2008.

EARTHWORK CALCULATIONS

CUT VOLUME: 42,809 C.Y.
FILL VOLUME: 169,944 C.Y.

EASEMENT NOTES

1. A RIGHT OF WAY FOR ONE DITCH, FLUME OR OTHER AQUEDUCT, ACROSS THE LAND OF ANY OTHER OWNER LYING BETWEEN THE LANDS OF SAID OWNER AND THE SAN JACINTO VIEJO, BY DECREE OF PARTITION OF SAID RANCHO RECORDED IN BOOK 43, PAGE 161 OF DEEDS, RECORDS OF SAN DIEGO COUNTY, CALIFORNIA. ROUTE NOT DEFINED OF RECORD.

2. THE RIGHT TO DEVELOP, TAKE, EXPORT AND APPROPRIATE TO ITS OWN USE IN ANY MANNER AND BY AN AGENCY, ALL WATER THAT MAY BE DISCOVERED IN OR THAT MAY BE DEPOSITED IN OR UNDERLIE THE PROPERTY HEREIN DESCRIBED, AND ALL RIPARIAN AND OTHER WATER RIGHTS THAT MAY BE AND APPURTENANT TO OR BELONG TO THE SAID LAND; PROVIDED, HOWEVER, THAT NO WORKS FOR THE DEVELOPMENT OF SAID WATER SHALL BE LOCATED ON THE LANDS HEREIN DESCRIBED; AND PROVIDED, HOWEVER, FURTHER, THAT THE OWNERS SHALL HAVE THE RIGHT TO DEVELOP WATER FOR DOMESTIC USE ON SAID LAND, CONVEYED BY DEED FROM THE SAN JACINTO LAND COMPANY TO CITIZENS WATER COMPANY OF SAN JACINTO, RECORDED DECEMBER 4, 1911 IN BOOK 341, PAGE 195 OF DEEDS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA AND IS BLANKET IN NATURE.

3. A RIGHT OF WAY OVER A STRIP OF LAND 30 FEET WIDE ON EACH SIDE OF THE SECTION AND QUARTER SECTION LINES FOR ROAD OR FOR DITCHES OR PIPES FOR CONDUCTING AND DISTRIBUTING WATER, AS DESCRIBED IN BOOK 341, PAGE 195 DEEDS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA AND IS SHOWN HEREON.

4. AN EASEMENT GRANTED TO EASTERN MUNICIPAL WATER DISTRICT, A PUBLIC AGENCY TO CONSTRUCT, ENLARGE, RECONSTRUCT, REMOVE AND REPLACE, OPERATE, INSPECT, MAINTAIN, REPAIR, IMPROVE AND RELOCATE, SEWAGE TRANSMISSION AND COLLECTION FACILITIES, INCLUDING, BUT NOT LIMITED TO, GRAVITY PIPELINES, PRESSURE PIPELINES, MANHOLES, CONNECTIONS, AND APPURTENANT EQUIPMENT FOR THE COLLECTION AND TRANSMISSION OF SEWAGE, TOGETHER WITH REASONABLE RIGHT OF ACCESS TO AND FROM SAID EASEMENT FOR THE PURPOSE OF EXERCISING THE RIGHTS GRANTED IN SAID EASEMENT, RECORDED SEPTEMBER 14, 2010 AS INSTRUMENT NO. 2010-0439200 OF OFFICIAL RECORDS, AND IS SHOWN HEREON.

LINE DATA

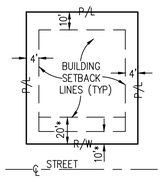
LINE	BEARING	DISTANCE
L1	N 89°52'59" W	20.00'
L2	N 00°07'01" E	60.00'
L3	N 45°40'13" E	24.28'

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN JACINTO, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE EAST ½ OF FARM LOT 161 OF THE LANDS OF SAN JACINTO LAND ASSOCIATION, AS SHOWN BY MAP ON FILE IN BOOK 8, PAGE 357 OF MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

EXCEPTING THEREFROM THAT PORTION OF LAND CONVEYED TO THE CITY OF SAN JACINTO, A CALIFORNIA MUNICIPAL CORPORATION, IN GRANT DEED RECORDED OCTOBER 2, 2019 AS INSTRUMENT NO. 2019-394879 OFFICIAL RECORDS.



TYPICAL BUILDING SETBACKS

NTS

20'* FROM R/W TO GARAGE,
10'* FROM R/W TO HOUSE FEATURE.
CORNER LOT: STREET SIDE SETBACK
10' FROM R/W.

SHEET INDEX

SHEET 1 . . . . . TITLE SHEET
SHEET 2 . . . . . TENTATIVE TRACT MAP
SHEET 3 . . . . . TENTATIVE TRACT MAP
SHEET 4 . . . . . TENTATIVE TRACT MAP
SHEET 5 . . . . . LOT AREA SUMMARY TABLE

PHASING NOTE

THIS TENTATIVE MAP IS BEING FILED IN ACCORDANCE WITH SUBDIVISION MAP ACT SECTION 66456.1 ALLOWING FOR THE FILING OF MULTIPLE FINAL MAPS. FOUR (4) PHASED FINAL MAPS ARE ANTICIPATED TO BE FILED BASED ON THIS TENTATIVE TRACT MAP.

DIG ALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

DATE	BY	MARK	REVISIONS	APPR.	DATE
			ENGINEER		CITY

DESIGNED BY: DRAWN BY: CHECKED BY:

SEAL
REGISTERED PROFESSIONAL ENGINEER
BLAINE A. WOMER
No. 46354
CIVIL
STATE OF CALIFORNIA

APPROVED BY: DATE
CONTRACT CITY ENGINEER

PREPARED BY: DATE
R.C.E. NO.

BLAINE A. WOMER
CIVIL ENGINEERING
• PLANNING
• SURVEYING
• CIVIL ENGINEERING
• PUBLIC WORKS

Hemet, CA. 92544, 41555 E Florida Ave., Suite G, Phone (951)658-1727 Fax (951)658-9347
Park City, UT 84098, 5133 Cove Canyon Dr. #302
Boise, ID. 83706, 4355 W Emerald Street, St. 145, Phone (208)593-7555

SCALE 1" = 60'
DATE SEPT. 18, 2024
BENCHMARK:

CITY OF SAN JACINTO

TENTATIVE TRACT MAP NO. 39076

FOR RAMONA DAIRY
W.O.

SHEET NO. 1 OF 5 SHEETS
FILE NO.

NORTH

0 60 120 180

1"=60'

LAND USE - LOW DENSITY RESIDENTIAL
ZONE - RESIDENTIAL LOW DENSITY

SEVENTH STREET

(TP 05.4) (0.25%) 512' (TP 06.7) (0.26%) 809' (TP 08.8)

STORMWATER FM TO DISCHARGE TO CB IN SEVENTH STREET

BASIN OVERFLOW

LANDSCAPE SETBACK LOT 'E' LOT 'F' LOT 'G' LOT 'F' LOT 'F'

N 88°43'40" W 1291.17'

PROP. 6' BLOCK WALL

FG 06.1 FG 07.3 FG 08.0 FG 08.6 FG 09.0

PROP. TUBULAR STEEL FENCE

Q10=77.7cfs Q100=120.9cfs

STORMWATER RETENTION BASIN BOTTOM ELEV= 1500.0

BIORETENTION BASIN NO. 1 BOTTOM ELEV= 05.0

LOT 'A' F.G.= 06.0 (CITY CFD MAINTAINED)

Q10=20.1cfs Q100=31.1cfs

Q10=10.3cfs Q100=16.1cfs

BIORETENTION BASIN NO. 1 BOTTOM ELEV= 05.0

EXIST. PAD ELEV. (TYP.)

EXIST. BLOCK WALL TO REMAIN.

ESPLANADE SPECIFIC PLAN SP 01-02
TRACTS 32955 & 32956-5
APN 433-260-017

N 00°05'34" E 2557.21'

STREET 'A' STREET 'B' STREET 'C' STREET 'D' STREET 'E' STREET 'F'

10' DRAINAGE EASEMENT

CAWSTON AVENUE

LAND USE - VERY LOW DENSITY RES.
ZONE - RURAL RESIDENTIAL

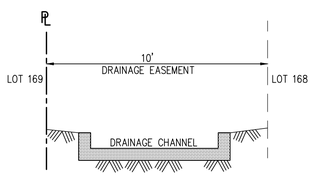
PROP. 6' BLOCK WALL

SEE SHEET NO. 3

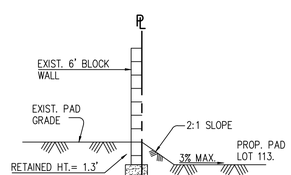
KEY NOTES

1. EXISTING STRUCTURES TO BE REMOVED.
2. PARKING TO BE RESTRICTED IN CUL-DE-SAC.

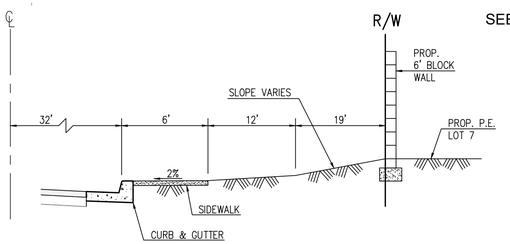
NOTE: ALL CURB RETURNS HAVE A 25' RADIUS.



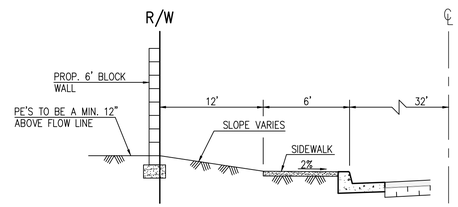
DRAINAGE EASEMENT SECTION
NTS



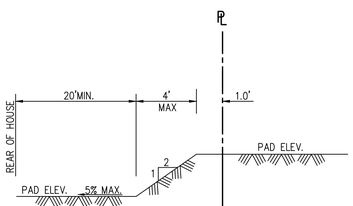
SECTION 'A' - 'A'
NTS



SECTION 'B' - 'B'
NTS



SECTION 'C' - 'C'
NTS



TYPICAL REAR YARD SECTION
NTS

SEE SHEET 1 FOR EASEMENT AND LINE DATA INFORMATION.

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DATE	BY	MARK	REVISIONS	APPR.	DATE
				CITY	

ENGINEER
DESIGNED BY: DRAWN BY: CHECKED BY:

SEAL
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DATE SEPT. 18, 2024
BENCHMARK:

CITY OF SAN JACINTO

TENTATIVE TRACT MAP NO. 39076

FOR RAMONA DAIRY W.O.

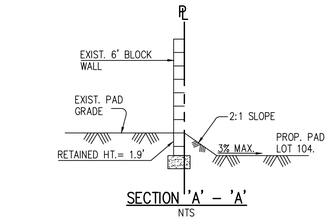
SHEET NO. 2 OF 5 SHEETS
FILE NO.

SEE SHEET NO. 2

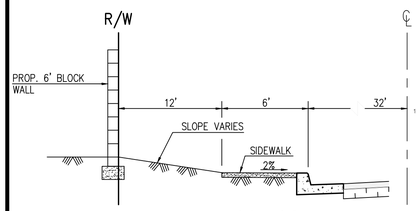
NORTH

0 60 120 180

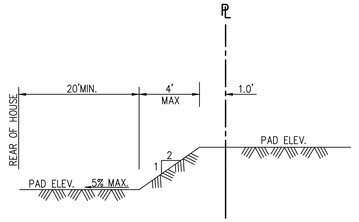
1"=60'



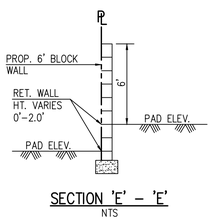
SECTION 'A' – 'A'
NTS



SECTION 'C' – 'C'
NTS



TYPICAL REAR YARD SECTION
NTS



SECTION 'E' – 'E'
NTS

ESPLANADE SPECIFIC PLAN SP 01-02
TRACT 32925-1
APN 432-260-014

CAWSTON AVENUE
LAND USE: VERY LOW DENSITY RESIDENTIAL
ZONE: RURAL RESIDENTIAL

STREET 'H' 258' | STREET 'I' 258' | STREET 'J' 258' | STREET 'K' 258' | STREET 'L' 258'

PASEO

LOT 'B'
F.G.= 08.0
(CITY CFD MAINTAINED)

BIORETENTION BASIN NO. 2
BOTTOM ELEV.= 07.0
Q10=6.9cfs Q100=10.8cfs
Q10=4.5cfs Q100=7.0cfs
Q10=9.7cfs Q100=15.1cfs

LOT 'A' 10.0 AC.±

LOT 'H' 4.0 AC.±

LOT 'G' 2.0 AC.±

PROP. 6' BLOCK WALL ON RETAINING WALL.

PROP. 6' BLOCK WALL.

EXIST. BLOCK WALL

N 00°05'34" E 2557.21'

2475.86'

SEE SHEET NO. 4

SEE SHEET 1 FOR EASEMENT AND LINE DATA INFORMATION.

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				CITY	

DESIGNED BY: DRAWN BY: CHECKED BY:

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DATE SEPT. 18, 2024
BENCHMARK:

CITY OF SAN JACINTO

TENTATIVE TRACT MAP NO. 39076

FOR RAMONA DAIRY
W.O.

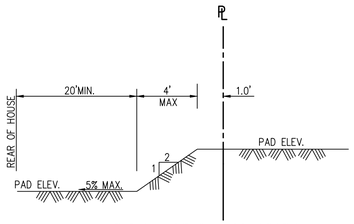
SHEET NO. 3
OF 5 SHEETS
FILE NO.

NORTH

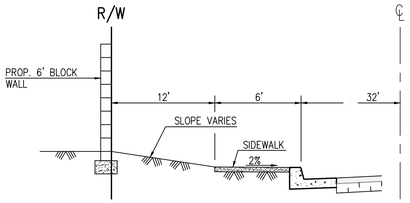
0 60 120 180

1"=60'

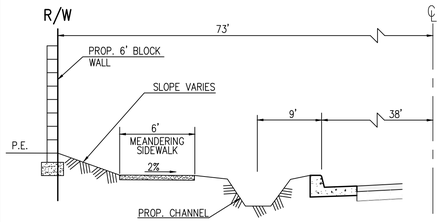
SEE SHEET NO. 3



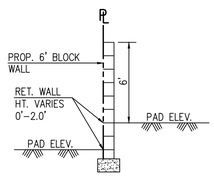
TYPICAL REAR YARD SECTION
NTS



SECTION 'C' – 'C'
NTS



SECTION 'D' – 'D'
NTS



SECTION 'E' – 'E'
NTS



KEY NOTES

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SCALE 1" = 60'
DATE SEPT. 18, 2024
BENCHMARK:

CITY OF SAN JACINTO

TENTATIVE TRACT MAP NO. 39076

FOR RAMONA DAIRY
W.O.

SHEET NO. 4 OF 5 SHEETS
FILE NO.

LOT AREA TABLE	
LOT #	AREA SQFT.
1	5,763
2	5,950
3	5,950
4	5,950
5	5,950
6	5,950
7	5,950
8	5,950
9	5,924
10	5,523
11	5,500
12	7,645
13	5,500
14	5,500
15	5,685
16	5,690
17	5,690
18	5,690
19	5,690
20	5,690
21	5,690
22	5,690
23	5,690
24	5,690
25	5,690
26	5,690
27	5,690
28	5,690
29	5,690
30	5,690
31	5,500
32	5,500
33	5,500
34	5,500
35	5,500
36	5,500
37	5,500
38	5,500
39	5,500
40	5,500
41	5,500
42	5,500
43	5,500
44	5,500
45	5,500
46	5,500
47	5,500
48	5,500
49	5,500
50	5,500

LOT AREA TABLE	
LOT #	AREA SQFT.
51	5,501
52	8,426
53	8,622
54	5,500
55	5,500
56	5,500
57	5,500
58	5,500
59	5,500
60	5,500
61	5,500
62	5,500
63	5,500
64	4,500
65	4,500
66	4,500
67	4,500
68	4,500
69	4,500
70	4,500
71	4,500
72	4,576
73	7,716
74	4,963
75	5,690
76	4,500
77	4,500
78	4,500
79	4,500
80	4,500
81	4,500
82	4,500
83	4,500
84	4,500
85	4,500
86	4,500
87	4,500
88	4,500
89	4,500
90	4,500
91	4,500
92	4,500
93	4,500
94	4,500
95	4,500
96	4,500
97	4,500
98	4,500
99	4,500
100	4,500

LOT AREA TABLE	
LOT #	AREA SQFT.
101	4,500
102	4,500
103	4,500
104	4,500
105	4,500
106	4,500
107	4,500
108	4,500
109	4,500
110	4,500
111	4,500
112	4,500
113	4,500
114	4,500
115	4,500
116	4,500
117	4,500
118	4,502
119	4,831
120	5,013
121	5,013
122	5,535
123	5,535
124	5,534
125	5,534
126	5,535
127	5,535
128	5,535
129	5,534
130	5,592
131	5,592
132	5,592
133	5,592
134	5,592
135	5,592
136	5,592
137	5,592
138	5,014
139	5,013
140	4,831
141	5,483
142	4,679
143	4,679
144	4,679
145	4,679
146	4,679
147	5,041
148	5,705
149	4,500
150	4,500

LOT AREA TABLE	
LOT #	AREA SQFT.
151	5,700
152	5,734
153	5,734
154	5,734
155	5,734
156	5,734
157	5,734
158	5,733
159	5,756
160	5,756
161	5,756
162	5,756
163	5,756
164	5,625
165	5,525
166	5,683
167	6,440
168	7,576
169	5,818
170	6,116
171	5,500
172	5,500
173	5,500
174	5,500
175	5,500
176	5,500
177	5,500
178	5,952
179	5,952
180	5,952
181	5,952
182	5,952
183	5,952
184	5,952
185	5,952
186	5,065
187	4,695
188	4,695
189	4,695
190	4,695
191	4,695
192	4,695
193	4,695
194	4,691
195	4,500
196	4,500
197	4,500
198	4,500
199	4,500
200	4,599

LOT AREA TABLE	
LOT #	AREA SQFT.
201	4,570
202	4,715
203	5,604
204	5,441
205	4,584
206	4,884
207	4,516
208	4,523
209	4,947
210	4,961
211	4,959
212	5,609
213	5,229
214	5,239
215	5,232
216	5,231
217	5,231
218	5,230
219	5,230
220	5,229
221	5,229
222	5,228
223	5,228
224	5,227
225	5,227
226	5,226
227	5,226
228	5,226
229	5,229
230	5,228
231	5,226
232	5,226
233	5,226
234	5,227
235	5,227
236	5,228
237	5,228
238	5,229
239	5,229
240	5,230
241	5,230
242	5,231
243	5,231
244	5,232
245	5,236
246	5,228
247	5,238
248	5,235
249	5,238
250	5,238

LOT AREA TABLE	
LOT #	AREA SQFT.
251	5,238
252	5,461
253	5,238
254	5,238
255	5,238
256	5,238
257	5,238
258	5,238
259	5,238
260	5,238
261	5,238
262	5,238
263	5,238
264	5,459
265	5,238
266	5,238
267	5,238
268	5,238
269	5,238
270	5,238
271	6,537
272	6,724
273	6,724
274	6,724
275	6,724
276	6,424
277	6,155
278	6,456
279	6,456
280	6,456
281	6,456
282	6,456
283	6,046
284	6,265
285	6,456
286	6,456
287	6,456
288	6,456
289	6,456
290	6,155
291	6,424
292	6,724
293	6,724
294	6,724
295	6,724
296	6,314
297	6,441
298	6,628
299	6,628
300	6,628

LOT AREA TABLE	
LOT #	AREA SQFT.
301	6,628
302	6,328
303	6,236
304	6,537
305	6,537
306	6,537
307	6,537
308	6,537
309	6,127
310	6,346
311	6,537
312	6,537
313	6,537
314	6,537
315	6,537
316	6,236
317	6,328
318	6,628
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320	6,628
321	6,628
322	6,218
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327	4,778
328	4,778
329	4,778
330	4,778
331	4,778
332	4,574
333	5,657
334	6,046
335	5,983
336	5,983
337	5,983
338	5,983
339	5,983
340	5,815
341	5,989
342	5,983
343	5,983
344	5,983
345	5,983
346	5,694
347	6,241
348	6,807
349	5,500
350	5,500

LOT AREA TABLE	
LOT #	AREA SQFT.
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352	5,975
353	5,975
354	5,975
355	5,985
356	6,160
357	5,975
358	5,975
359	5,975
360	5,975
361	5,975
362	6,020
363	4,853
364	4,853
365	4,853
366	4,853
367	4,853
368	4,858
369	4,736
370	4,736
371	4,736
372	4,736
373	4,736
374	4,734
375	4,533
376	4,529
377	4,937
378	4,865
379	4,833
380	4,989
381	4,989
382	4,989
383	4,987
384	4,738
385	4,833
386	4,833
387	4,833
388	4,833
389	4,833
390	4,835
391	4,801
392	5,604
393	5,604
394	5,604
395	5,604
396	5,604
397	5,604
398	5,604
399	5,604
400	5,607

LOT AREA TABLE	
LOT #	AREA SQFT.
401	5,737
402	5,604
403	5,607
404	5,604
405	5,604
406	5,604
407	5,604
408	5,604
409	5,604
410	5,604
411	5,604
412	4,801
413	4,728
414	4,728
415	4,728
416	4,728
417	4,728
418	4,726
419	4,911
LOT 'A'	3.73 AC
LOT 'B'	1.19 AC
LOT 'C'	0.58 AC
LOT 'D'	0.67 AC
LOT 'E'	9,868 SF
LOT 'F'	22,523 SF
LOT 'G'	39,134 SF
LOT 'H'	23,349 SF

MINIMUM LOT SIZE: 4,275 S.F.
AVERAGE LOT SIZE: 5,419 S.F.
MINIMUM LOT WIDTH: 45 FT.
MINIMUM LOT WIDTH CORNER: 51 FT.
MINIMUM LOT DEPTH: 95 FT.
MAXIMUM FRONT YARD IMPERVIOUS COVER: 35%,
OR AS OTHERWISE ALLOWED PER CODE SEC.17.215.035 A.

DIG ALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

DATE	BY	MARK	REVISIONS	APPR.	DATE
ENGINEER				CITY	
DESIGNED BY:		DRAWN BY:	CHECKED BY:		

SEAL
REGISTERED PROFESSIONAL ENGINEER
BLAINE A WOMER
No. 46354
CIVIL
STATE OF CALIFORNIA

APPROVED BY: DATE
CONTRACT CITY ENGINEER

PREPARED BY: DATE

R.C.E. NO.

BLAINE A. WOMER
CIVIL ENGINEERING
• PLANNING
• SURVEYING
• CIVIL ENGINEERING
• PUBLIC WORKS

Hemet, CA. 92544, 41555 E Florida Ave., Suite G, Phone (951)658-1727 Fax (951)658-9347
Park City, UT 84098, 5133 Cove Canyon Dr. #302
Boise, ID. 83706, 4355 W Emerald Street, St. 145, Phone (208)593-7555

SCALE 1" = 60'
DATE
BENCHMARK:

CITY OF SAN JACINTO
TENTATIVE TRACT
MAP NO. 39076
LOT AREAS

FOR
W.O.

SHEET NO.
5
OF 5 SHEETS
FILE NO.

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

UPDATED GEOTECHNICAL INVESTIGATION

SWC OF 7TH STREET AND CAWSTON AVENUE SAN JACINTO, CALIFORNIA

GEOCON
WEST, INC.

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

RAMONA DAIRY, LLC.
2451 RAMONA EXPRESSWAY
SAN JACINTO, CALIFORNIA 92582

JANUARY 2, 2024
PROJECT NO. T2998-22-01

Project No. T2998-22-01
January 2, 2024

Ramona Dairy, LLC.
2451 Ramona Expressway
San Jacinto, California 92582

Attention: Mr. Richard Michael

Subject: UPDATED GEOTECHNICAL INVESTIGATION
SWC OF 7TH STREET AND CAWSTON AVENUE
SAN JACINTO, CALIFORNIA

Dear Mr. Michael:

In accordance with your authorization of our Work Order Authorization dated December 20, 2023, Geocon West, Inc. (Geocon) herein submits the results of our update to the preliminary geotechnical investigation dated November 4, 2022. The accompanying report presents an update to our preliminary findings, conclusions and recommendations pertaining to the geotechnical aspects of developing the property as presently proposed. Based on the results of this study, it is our opinion that the site is considered suitable for the proposed development provided the recommendations of this report are followed. The conclusions and recommendations provided in the 2022 report remain applicable unless superseded herein.

The primary intent of this report is to address the potential geologic hazards and geotechnical conditions that could impact site development and to provide an update to the preliminary geotechnical recommendations. Five geotechnical borings and four percolation tests were performed within the 76+ acre site for the preliminary geotechnical investigation. The northern portion of the site was occupied with a residence and basin at the time of the field work. Therefore, a supplemental geotechnical investigation should be performed with percolation testing performed at the BMP locations and elevations once grading plans have been developed. Additional analyses will be required in order to provide comprehensive geotechnical recommendations for design and construction when the scope of the proposed development has been established.

Should you have any questions regarding this report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON WEST, INC.

Lisa Battiato
CEG 2316

PROFESSIONAL GEOLOGIST
LISA A. BATTIATO
No. 2316
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Ashleigh D. Love
PE 79019

LICENSED PROFESSIONAL ENGINEER
ASHLEIGH LOVE
C 79019
EXP. 03/31/24
CIVIL
STATE OF CALIFORNIA

LAB:ADL:hd
(email) Addressee

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MAPS AND ILLUSTRATIONS
   Figure 1, Vicinity Map
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   FIELD EXPLORATION
   Figures A-1 through A-5, Logs of Borings
   Figures A-6 through A-9, Logs of Percolation Test Borings
   Figures A-10 through A-13, Percolation Test Data Sheets

UPDATED GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of our updated geotechnical investigation for the proposed development of approximately 76 acres located southwest of 7th Street and Cawston Avenue in San Jacinto, California, as depicted on the *Vicinity Map*, Figure 1.

The purpose of our investigation in 2022 was to perform a preliminary evaluation of subsurface soil and geologic conditions underlying the site and based on the conditions encountered, provide preliminary recommendations pertaining to the geotechnical aspects of developing the property as proposed. Due to the preliminary nature of the project at this time, the primary intent of this updated report is to address the potential geologic hazards and geotechnical conditions that could impact site development and to provide preliminary recommendations with respect to the 2022 California Building Code. The information provided in the 2022 report remains applicable to the site unless superseded herein. Additional analyses will be required in order to provide comprehensive geotechnical recommendations for design and construction when the scope of the proposed development has been established.

2. SITE AND PROJECT DESCRIPTION

The *Vesting Tentative Tract Map No. 38787* prepared by Psomas indicates site development will include single-family homes, and townhomes with a community park and open space areas for storm water infiltration or retention.

The site grading plans, structural plans, and building loads were not available. Based on the site elevations and surrounding roadway elevations, we expect rough grading will entail cuts and fills of less than 5 feet, exclusive of remedial grading.

We understand that the site will likely be used for the construction of single- or townhouse residential structures, which are expected to have spread footing foundations with slab-on-grade floors. Single-family and townhouse structures will likely be two or three stories. We have assumed that column loads will be up to 300 kips, and wall loads will be up to 4 kips per linear foot for the heaviest loaded structure.

Once the design phase and foundation loading configuration proceeds to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. Any changes in the design, location, or elevation of any structure, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

3. GEOLOGIC HAZARDS

3.1 Subsidence

Regional subsidence has occurred in several valley areas in California due to withdrawal of groundwater or oil, and in some cases peat loss. The site is located in the San Jacinto Valley which is a deep northwest trending alluvial valley created along the San Jacinto fault. The valley is bounded on the northeast and southwest by granitic bedrock hills which extend along the valley margins to depths of several hundred feet. The site is not located in an Area of Land Subsidence in California according to the United States Geological Survey (USGS). The San Jacinto Valley is not included in an area currently undergoing a USGS subsidence study. Riverside County does include the site in an area of active subsidence. California Geological Survey does not address subsidence risk on its website. A search of the city of San Jacinto website GIS system did not yield results when the term "subsidence" was searched. Based on this information, ground subsidence could occur. However, the settlement is expected to occur over a relatively large geographic area and is not expected to cause differential settlement over a relatively short horizontal distance which would be addressed as a design concern as part of the site development.

4. SITE INFILTRATION

Percolation testing was performed at four locations within the site to provide preliminary information for project design. Additional percolation testing will be necessary at the proposed BMP locations and planned infiltration elevations once they are known. The testing was performed in general accordance with the procedures outlined in *Riverside County Flood Control and Water Conservation District LID BMP, Appendix A* (Handbook) to determine preliminary infiltration potential. The percolation test locations are depicted on the *Geologic Map*, Figure 2.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 General

5.1.1 Additional subsurface exploration and percolation testing will be required before site grading to provide adequate subsurface information for earthwork operations and provide the necessary percolation test data required by Riverside County BMP LID Handbook.

5.2 Soil and Excavation Characteristics

5.2.1 The upper 5 feet of existing site soils encountered during the investigation are considered to have a "very low" expansive potential (EI = 11) and are classified as "non-expansive" in accordance with the 2022 California Building Code (CBC) Section 1803.5.3. The recommendations presented herein assume that the building foundations and slabs will derive support in these materials.

5.2.2 As a minimum, it is recommended that the upper 8 feet of existing earth materials within the proposed building footprint areas be excavated and properly compacted for post-tensioned foundation system support. Deeper excavations should be conducted as necessary to remove deeper artificial fill or soft alluvial soil at the direction of the Geotechnical Engineer (a representative of Geocon). Proposed foundations should be underlain by at least 5 feet of newly placed engineered fill. The excavation should extend laterally a minimum distance of 6 feet beyond the building footprint area, including building appurtenances, or a distance equal to the depth of fill below the foundation, whichever is greater. The limits of existing fill and/or soft alluvial soils removal will be verified by the Geocon representative during site grading activities.

5.3 Soil and Minimum Resistivity, pH, and Water-Soluble Sulfate

5.3.1 Laboratory tests were performed on representative samples of the site materials to measure the percentage of water-soluble sulfate content. Results from the laboratory water-soluble sulfate tests are presented in Appendix B (Figure B-4) and indicate that the on-site materials possess a sulfate exposure class of "S0" to concrete structures as defined by 2022 CBC Section 1904 and ACI 318-19 Chapter 19.

5.4 Seismic Design Criteria

5.4.1 The following table summarizes the site-specific design criteria obtained from the 2022 California Building Code (CBC; Based on the 2021 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. The data was calculated using the online application *U.S. Seismic Design Maps*, provided by the Structural Engineers Association of California (SEAOC). The short spectral response uses a period of

0.2 second. We evaluated the Site Class based on the discussion in Section 1613.2.2 of the 2022 CBC and Table 20.3-1 of ASCE 7-16. The values presented below are for the risk-targeted maximum considered earthquake (MCE_R).

5.4.2 Although there are soils susceptible to seismic settlement underlying the site, we expect the building possesses a fundamental period of less than 0.5 seconds; therefore, a site response analysis is not anticipated to be required in accordance with ASCE 7-16, Section 20.3.1.

2022 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2022 CBC Reference
Site Class	D	Section 1613.2.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	1.984g	Figure 1613.2.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.785g	Figure 1613.2.1(3)
Site Coefficient, F_A	1.009	Table 1613.2.3(1)
Site Coefficient, F_V	1.7*	Table 1613.2.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	1.984g	Section 1613.2.3 (Eqn 16-20)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	1.334g*	Section 1613.2.3 (Eqn 16-21)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	1.323g	Section 1613.2.4 (Eqn 16-22)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.889g*	Section 1613.2.4 (Eqn 16-23)

*Per Supplement 3 of ASCE 7-16, a ground motion hazard analysis (GMHA) shall be performed for projects on Site Class "D" sites with 1-second spectral acceleration (S_1) greater than or equal to 0.2g, which is true for this site. However, Supplement 3 of ASCE 7-16 provides an exception stating that that the GMHA may be waived provided that the parameter S_{M1} is increased by 50% for all applications of S_{M1}. The values for parameters S_{M1} and S_{D1} presented above have **not** been increased in accordance with Supplement 3 of ASCE 7-16.

5.4.3 Conformance to the criteria in the above tables for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

5.5 Post Tensioned Foundation Recommendations

5.5.1 The proposed residential structures may be supported on a post-tensioned concrete slab and foundation system deriving support in newly placed engineered fill subsequent to the recommended grading. Proposed foundations should be underlain by at least 5 feet of newly placed engineered fill. Foundation excavations must be observed and approved in writing by the Geotechnical Engineer, prior to placing reinforcing steel or concrete.

5.5.2 The post-tensioned system should be designed by a structural engineer experienced in post-tensioned slab design and design criteria of the Post-Tensioning Institute (PTI) DC 10.5-12 *Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive Soils* or *WRI/CRSI Design of Slab-on-Ground Foundations*, as required by the 2022 California Building Code (CBC Section 1808.6.2). Although this procedure was developed for expansive soil conditions, we understand it can also be used to reduce the potential for foundation distress due to differential settlement. The post-tensioned design should incorporate the geotechnical parameters presented in Table 5.5.2 below, which are based on the guidelines presented in the PTI, Third Edition design manual.

TABLE 5.5.2
POST-TENSIONED FOUNDATION SYSTEM DESIGN PARAMETERS

Post-Tensioning Institute (PTI) Third Edition Design Parameters	Value
Thornthwaite Index	-20
Equilibrium Suction	3.9
Edge Lift Moisture Variation Distance, e_M (feet)	4.9
Edge Lift, y_M (inches)	1.58
Center Lift Moisture Variation Distance, e_M (feet)	9.0
Center Lift, y_M (inches)	66

5.6 Foundation Settlement

5.6.1 The enclosed seismically induced settlement analysis indicates that the site soils could be susceptible to approximately 0.79 inch of total settlement as a result of the Design Earthquake peak ground acceleration (⅔PGA_M). The differential settlement at the foundation level is anticipated to be approximately 0.4 inch over a distance of 50 feet. These settlements are in addition to the static settlements indicated below and must be considered in the structural design.

5.6.2 The maximum expected static settlement for the proposed structures supported on a post-tensioned foundation system designed with a maximum bearing pressure of 3,000 psf and deriving support in newly placed engineered fill is estimated to be less than 1.25 inch and occur below the heaviest loaded structural element. A majority of the settlement of the foundation system is expected to occur on initial application of loading; however, minor additional settlements are expected within the first 12 months. Differential settlement is not expected to exceed 5/8 inch over a distance of 20 feet.

5.6.3 Based on seismic considerations, the proposed structures should be designed for a combined static and seismically induced differential settlement of 1 inch over a distance of 20 feet.

5.6.4 Once the design and foundation loading configurations for the proposed structures proceeds to a more finalized plan, the estimated settlements presented in this report should be reviewed and revised, if necessary. If the final foundation loading configurations are greater than the assumed loading conditions, the potential for settlement should be reevaluated by this office.

5.7 Surface Drainage

5.7.1 All site drainage should be collected and controlled in non-erosive drainage devices. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundation or retaining wall. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2022 CBC 1804.4 or other applicable standards. In addition, drainage should not be allowed to flow uncontrolled over any descending slope. Discharge from downspouts, roof drains and scuppers are not recommended onto unprotected soils within 5 feet of the building perimeter. Planters which are located adjacent to foundations should be sealed to prevent moisture intrusion into the soils providing foundation support. Landscape irrigation is not recommended within 5 feet of the building perimeter footings except when enclosed in protected planters.

5.8 Plan Review

5.8.1 Grading, foundation, and, if applicable, shoring plans should be reviewed by the Geotechnical Engineer (a representative of Geocon), prior to finalization to verify that the plans have been prepared in substantial conformance with the recommendations of this report and to provide additional analyses or recommendations. Additional subsurface exploration and percolation are highly recommended to provide adequate coverage of the site prior to earthwork operations and to satisfy Riverside County requirements.

5.9 Testing and Observation Services During Construction

5.9.1 Geocon should provide geotechnical testing and observation services during the grading operations, foundation construction, utility installation, retaining wall backfill and pavement installation. Table 5.9.1 presents the typical geotechnical observations we would expect for the proposed improvements.

TABLE 5.9.1
EXPECTED GEOTECHNICAL TESTING AND OBSERVATION SERVICES

Construction Phase	Observations	Expected Time Frame
Ground Modification	Ground Modification Installation	Full Time
	Confirmation Testing	Part Time to Full Time
Grading	Base of Removal	Part Time During Removals
	Geologic Logging	Part Time to Full Time
	Fill Placement and Soil Compaction	Full Time
Soldier Piles	Solder Pile Drilling Depth	Part Time
Tieback Anchors	Tieback Drilling and Installation	Full Time
	Tieback Testing	Full Time
Soil Nail Walls	Soil Nail Drilling and Installation	Full Time
	Soil Nail Testing	Full Time
Foundations	Foundation Excavation Observations	Full Time
	Drilling Operations for Piles	Part Time
Utility Backfill	Fill Placement and Soil Compaction	Part Time to Full Time
Retaining Wall Backfill	Fill Placement and Soil Compaction	Part Time to Full Time
Subgrade for Sidewalks, Curb/Gutter and Pavement	Soil Compaction	Part Time
Pavement Construction	Base Placement and Compaction	Part Time
	Asphalt Concrete Placement and Compaction	Full Time

LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon West, Inc. should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon West, Inc.

2. This report is issued with the understanding that it is the responsibility of the owner, or of their representative, to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

3. The findings of this report are valid as of the date of this report. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

4. The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

LIST OF REFERENCES

1. American Society of Civil Engineers (ASCE), *ASCE 7-16, Minimum Design Loads and Associated Criteria for Buildings and Other Structures*, 2017.

2. California Building Standards Commission, 2022, *California Building Code (CBC)*, California Code of Regulations Title 24, Part 2.

3. California Geological Survey (CGS), *Earthquake Shaking Potential for California*, from USGS/CGS Seismic Hazards Model, CSSC No. 03-02, 2003.

4. California Geological Survey (CGS), *Probabilistic Seismic Hazards Mapping-Ground Motion Page*, 2003, CGS Website: www.conserv.ca.gov/cgs/rghm/pshamap.

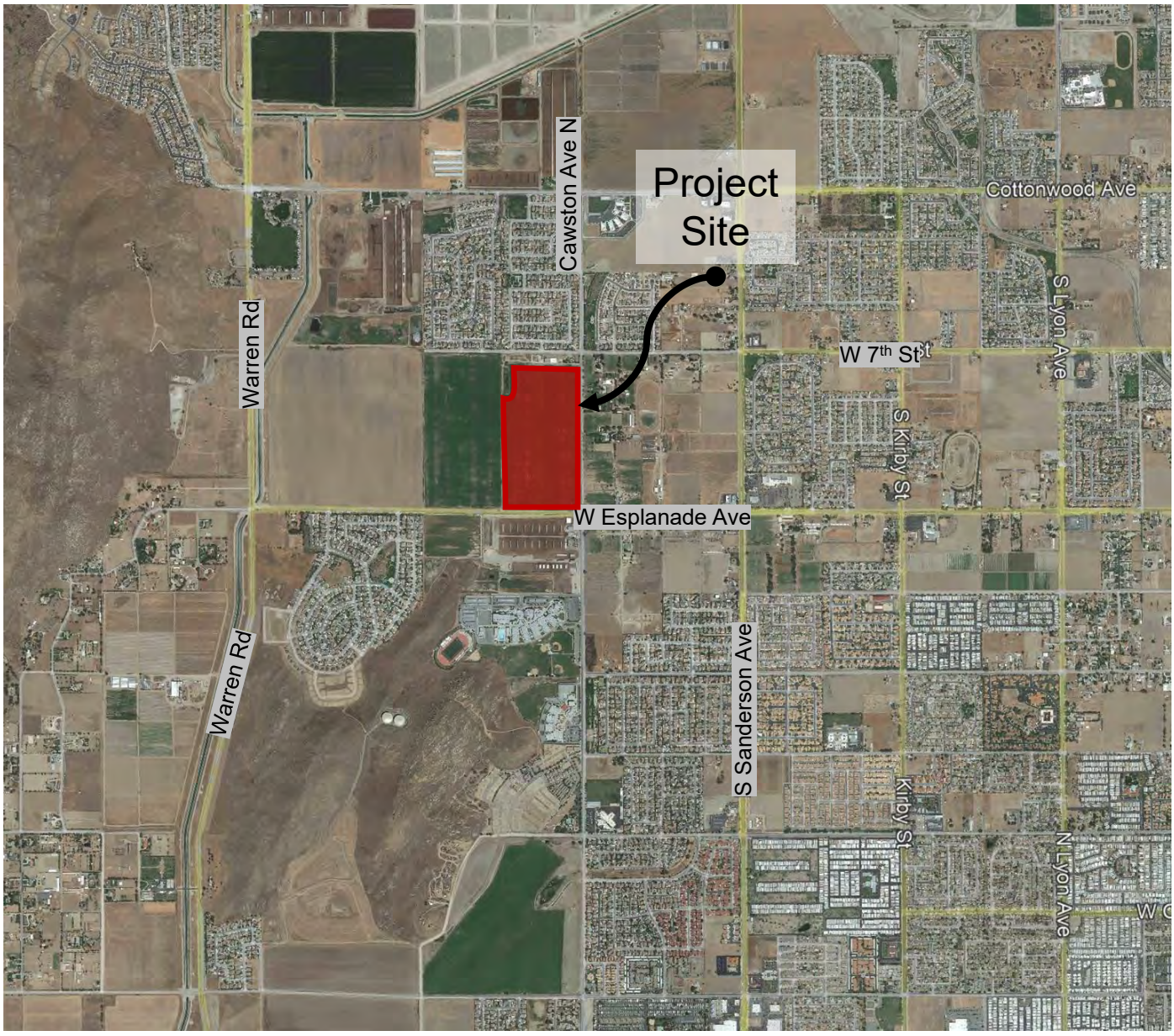
5. Geocon West, Inc., 2022*, Preliminary Geotechnical Investigation, SWC of 7th Street and Cawston Avenue, San Jacinto, California,* Project T2998-2-01, dated November 4.

6. OSHPD, *Seismic Design Maps*, seismicdesignmaps.org, accessed December 2023.

7. Riverside County GIS (RC GIS), *Map My County* website, http://mmc.rivcoit.org/MMC_Public/Custom/disclaimer/Default.htm; accessed December 2023.

8. USGS, *Areas of Land Subsidence in California*, ca.water.usgs.gov/land_subsidence/California-subsidence+areas.html, accessed December 2023.

9. USGS, *Unified Hazard Tool*, earthquake.usgs.gov/hazards/interactive, accessed December 2023.



N

0’ 2,700’ 5,400’

SCALE: 1” = 1,400’

SOURCE: Google Maps, 2022

VICINITY MAP

GEOCON WEST, INC.
GEOTECHNICAL ENVIRONMENTAL MATERIALS
41571 CORNING PLACE, SUITE 101, MURRIETA, CA 92562-7065
PHONE 951-304-2300 www.geoconinc.com

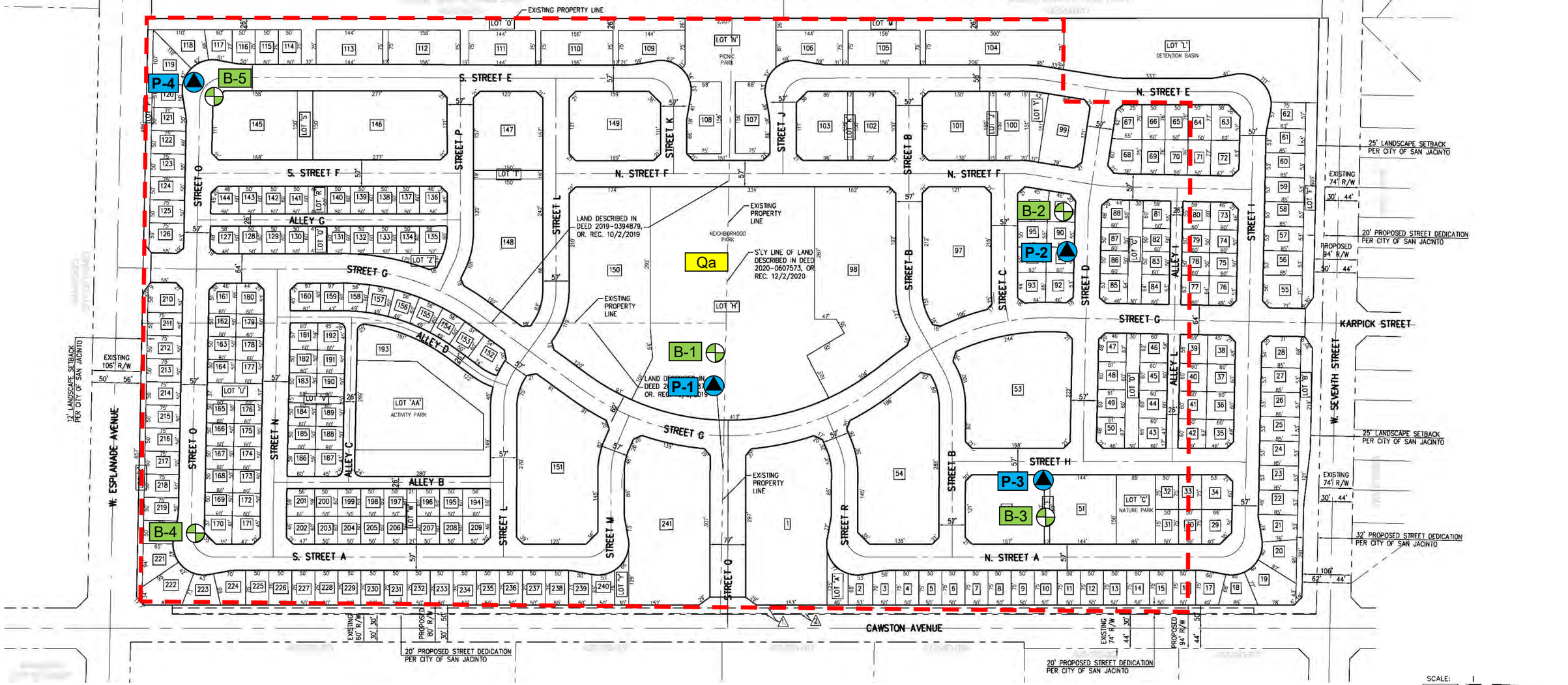
ARK		

SWC 7TH STREET & CAWSTON AVENUE
SAN JACINTO, CALIFORNIA

JANUARY 2024	PROJECT NO. T2998-22-01	FIG. 1

VESTING TENTATIVE TRACT MAP NO. 38787

IN THE CITY OF SAN JACINTO, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA FOR SUBDIVISION AND CONDOMINIUM PURPOSES



GEOCON LEGEND

Locations are approximate

B-5 ..... BORING LOCATION

P-4 ..... PERCOLATION TEST LOCATION

..... PROJECT LIMITS

Qa ..... ALLUVIUM

Source: Vesting Tentative Tract Map No. 38787, Prepared by PSOMAS, dated 10/27/2023

GEOCON WEST, INC.

GEOTECHNICAL, ENVIRONMENTAL, MATERIALS
41571 CORNING PLACE #101, MURRIETA, CALIFORNIA 92562
PHONE 951-304-2300 www.geoconinc.com

HD			JANUARY 2024	PROJECT NO. T2998-22-01	FIG. 2

GEOLOGIC MAP

SWC 7TH STREET & CAWSTON AVENUE
SAN JACINTO, CALIFORNIA

APPENDIX A

APPENDIX A

FIELD EXPLORATION

Geocon performed the field investigation on September 26 and 27, 2022, which included the drilling of five geotechnical borings (B-1 through B-5) and four percolation borings (P-1 through P-4) to depths between approximately 2 to 51½ feet, to observe the subsurface geological conditions, perform percolation testing at the site, collect relatively undisturbed in-situ and disturbed bulk samples for laboratory testing, and evaluate the depth to groundwater. Borings were drilled with a truck mounted CME-75 drill rig with 8-inch-diameter hollow stem augers.

We collected relatively undisturbed and bulk samples from the borings. The undisturbed samples were obtained by driving a 3-inch O. D., California Modified Sampler into the "undisturbed" soil mass with blows from a 140-pound hammer falling 30 inches. The California Modified Sampler was equipped with 1-inch high by 2$^{3}/_{8}$-inch inside diameter brass sampler rings to facilitate removal and testing. Relatively undisturbed samples and bulk samples of disturbed soils were transported to our laboratory for testing. The soil conditions encountered in the borings were visually examined, classified and logged in general accordance with the Unified Soil Classification System (USCS).

Logs of the geotechnical borings are presented on Figures A-1 through A-5, percolation borings on A-6 through A-9, and percolation test data sheets on A-10 through A-13. The logs depict the soil and geologic conditions encountered and the depth at which samples were obtained. The logs also include our interpretation of the conditions between sampling intervals. Therefore, the logs contain both observed and interpreted data. We determined the lines designating the interface between soil materials on the logs using visual observations, penetration rates, excavation characteristics and other factors. The transition between materials may be abrupt or gradual. Where applicable, the logs were revised based on subsequent laboratory testing. The approximate locations of the borings are depicted on the *Geologic Map*, Figure 2.

PROJECT NO. T2998-22-01

BORING B-1

ELEV. (MSL.) **1512** DATE COMPLETED **9/26/2022**

EQUIPMENT **CME75** BY: **L. WEIDMAN**

DEPTH IN FEET	SAMPLE NO.	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B-1@0-5	SM	**TOPSOIL** Silty SAND, loose, moist, very dark brown; fine to medium sand; very silty			
2		SP	**ALLUVIUM (Qa)**			
	B-1@2.5		Poorly-graded SAND, loose, moist, strong brown; medium sand; some fine sand; little mica	7		
4						
6	B-1@5 B-1@5-10	ML	SILT with sand, soft to firm, very moist, olive brown; fine to medium sand; little mica	12	95.3	23.7
8	B-1@7.5		-Some mica	9	101.4	22.6
10	B-1@10		-Becomes micaceous; trace rootlets	11	96.4	27.2
12						
14						
16	B-1@15	SP-SM	Poorly-graded SAND with silt, medium dense, moist, olive gray; fine to medium sand; micaceous	40	102.9	19.1
18						
20	B-1@20	CL	CLAY, soft, wet, very dark olive; fine sand; micaceous	9	93.6	28.7
22						
24		SM	Silty SAND, medium dense, moist to wet, grayish brown; fine to medium sand; some coarse sand; trace gravel			
26	B-1@25			38		
28						

Figure 1,
Log of Boring B-1, Page 1 of 2

T2998-22-01 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. T2998-22-01

BORING B-1

ELEV. (MSL.) **1512** DATE COMPLETED **9/26/2022**

EQUIPMENT **CME75** BY: **L. WEIDMAN**

DEPTH IN FEET	SAMPLE NO.	BULK	DR/SPT	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	B-1@30						-Becomes very dense, pale yellow to yellow brown; fine to coarse sand; few gravel	80		
32										
34						SP	Poorly-graded SAND, very dense, moist, pale yellow to white; medium to coarse sand; trace fine sand; few mica; oxidation staining			
36	B-1@35							71		
38										
40	B-1@40					SM	Silty SAND, very dense, moist, dark gray brown; fine to medium sand; trace coarse sand; little mica	60		
42										
44										
46	B-1@45						-Becomes fine to coarse sand; trace gravel; mottle coloring	65		
48										
50	B-1@50						-Becomes dark brown; slightly oxidized	63		
							Total Depth = 51.5' Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 9/26/2022			

Figure 1,
Log of Boring B-1, Page 2 of 2

T2998-22-01 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. T2998-22-01

BORING B-2

ELEV. (MSL.) **1509** DATE COMPLETED **9/26/2022**

EQUIPMENT **CME75** BY: **L. WEIDMAN**

DEPTH IN FEET	SAMPLE NO.	BULK	DR/SPT	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0						ML	**ALLUVIUM (Qa)** SILT with sand, stiff, slightly moist, olive gray; fine sand; little mica; AC chunks and gravel at surface			
2	B-2@2-7 B-2@2.5						-Becomes light brown; little mica	38		
4						SM	Silty SAND, slightly moist, brown; fine to medium sand; little mica; very silty			
6	B-2@5							45		
8	B-2@7.5						-Becomes fine to medium sand; no coarse sand; few silt	30		
10	B-2@10					SM	Silty SAND, loose, slightly moist, olive gray; fine to medium sand; trace coarse sand; little mica	15	104.6	9.8
12										
14						ML	SILT, stiff, moist, brown; fine sand; little clay seams; mica			
16	B-2@15							21		
18										
20	B-2@20					SM	Silty SAND, medium dense, moist, dark brown; fine to medium sand; mica	31		
22										
24										
26	B-2@25						-Little coarse sand	44		
28										

Figure 2,
Log of Boring B-2, Page 1 of 2

T2998-22-01 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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PROJECT NO. T2998-22-01

DEPTH IN FEET	SAMPLE NO.	BULK	DR/SPT	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING B-2** ELEV. (MSL.)**1509** DATE COMPLETED **9/26/2022** EQUIPMENT **CME75** BY: **L. WEIDMAN**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
							MATERIAL DESCRIPTION			
30	B-2@30						-Becomes strong brown; fine to coarse sand; micaceous	39		
32										
34										
36	B-2@35						-Becomes dark brown; fine to medium sand; trace coarse sand; little mica	45		
							Total Depth = 36.5' Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 9/26/2022			

Figure 2,
Log of Boring B-2, Page 2 of 2

T2998-22-01 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. T2998-22-01

BORING B-3

ELEV. (MSL.) **1511** DATE COMPLETED **9/26/2022**

EQUIPMENT **CME75** BY: **L. WEIDMAN**

DEPTH IN FEET	SAMPLE NO.	BULK	DR/SPT	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0						ML	**TOPSOIL** SILT, soft, slightly moist, olive gray; fine to medium sand			
2	B-3@2.5					SM	**ALLUVIUM (Qa)** Silty SAND, loose, moist, strong brown; fine to medium sand; little coarse sand; little mica	13		
4										
6	B-3@5						-Little silt; some mica	15	107.8	12.4
8	B-3@7.5						-Few silt; micaceous	15	106.7	9.6
10	B-3@10						-Becomes less silty; moisture increases	16	97.8	19.3
12										
14										
16	B-3@15					SM	Silty SAND, medium dense, moist, strong brown to dark brown; fine to medium sand; some mica; laminated	26		
18										
20	B-3@20						-Becomes dense; inbedded with thin poorly-graded sand layers	44		
22										
24										
26	B-3@25						-Becomes wet, very dark brown; fine to coarse sand	15		
28										

Figure 3,
Log of Boring B-3, Page 1 of 2

T2998-22-01 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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PROJECT NO. T2998-22-01

DEPTH IN FEET	SAMPLE NO.	BULK	DR/SPT	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING B-3** ELEV. (MSL.)**1511** DATE COMPLETED **9/26/2022** EQUIPMENT **CME75** BY: **L. WEIDMAN**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
							MATERIAL DESCRIPTION			
30	B-3@30						-Becomes micaceous; massive	30		
32										
34										
36	B-3@35						-Becomes fine to medium sand; slightly oxidized	37		
							Total Depth = 36.5' Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 9/26/2022			

Figure 3,
Log of Boring B-3, Page 2 of 2

T2998-22-01 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. T2998-22-01

BORING B-4

ELEV. (MSL.) **1513** DATE COMPLETED **9/26/2022**

EQUIPMENT **CME75** BY: **L. WEIDMAN**

DEPTH IN FEET	SAMPLE NO.	BULK	DR/SPT	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0						ML	**TOPSOIL** SILT, hard, slightly moist, very dark brown; fine to medium sand			
						SM	**ALLUVIUM (Qa)**			
2	B-4@2-7						Silty SAND, medium dense, slightly moist to moist, dark brown; fine to medium sand; little coarse sand; little mica			
	B-4@2.5							20		
4							-Little mica			
	B-4@5						-Becomes very moist, dark olive gray; Interbedded SM, ML, & SP	18	80.5	38.3
6						SM	Silty SAND, loose to medium dense, moist, olive; fine to medium sand; micaceous			
8	B-4@7.5							11	105.2	19.1
10	B-4@10					CL	CLAY, firm, very moist, olive brown	16	95.8	31.6
12										
14						SC	Clayey SAND with Gravel, medium dense, very moist, gray and pale brown; fine sand			
	B-4@15							40	104.8	21.5
16										
18						SM	Silty SAND, medium dense, very moist, olive gray; fine to medium sand; micaceous			
20	B-4@20							18	103.6	21.5
22										
24										
	B-4@25						-Becomes medium dense; less silt	40		
26										
28										

Figure 4,
Log of Boring B-4, Page 1 of 2

T2998-22-01 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. T2998-22-01

DEPTH IN FEET	SAMPLE NO.	BULK	DR/SPT	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING B-4** ELEV. (MSL.)**1513** DATE COMPLETED **9/26/2022** EQUIPMENT **CME75** BY: **L. WEIDMAN**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
							MATERIAL DESCRIPTION			
30	B-4@30						-Becomes gray brown; oxidation staining and on peds	30		
32										
34										
36	B-4@35						-Becomes dense; Poorly-graded SAND lens 3-4" thick	54		
							Total Depth = 36.5' Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 9/26/2022			

Figure 4,
Log of Boring B-4, Page 2 of 2

T2998-22-01 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◹ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. T2998-22-01

BORING B-5

ELEV. (MSL.) **1511** DATE COMPLETED **9/26/2022**

EQUIPMENT **CME75** BY: **L. WEIDMAN**

DEPTH IN FEET	SAMPLE NO.	BULK	DR/SPT	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0						ML	**TOPSOIL** SILT, loose, slightly moist, dark brown; fine to medium sand			
2						SM	**ALLUVIUM (Qa)** Silty SAND, soft, slightly moist to moist, olive brown; fine to medium sand; very silty			
2	B-5@2.5							9		
4										
6	B-5@5						-Becomes micaceous	5	92.4	24.1
8	B-5@7.5						-Becomes dark brown; very sandy; less silt	11	106.4	19.1
10	B-5@10					SC	Clayey SAND, loose, moist, dark olive brown; fine to medium sand; micaceous	15	92.9	22.3
12										
14						CL	CLAY, firm, very moist, olive gray			
16	B-5@15							26	89.0	37.1
18										
20	B-5@20						-Becomes dark brown	18	107.8	25.3
22						SM	Silty SAND, medium dense, moist, very dark brown; fine to medium sand; micaceous			
24										
26	B-5@25						-Becomes dark brown; less silt; little coarse sand	36		
28										

Figure 5,
Log of Boring B-5, Page 1 of 2

T2998-22-01 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. T2998-22-01

DEPTH IN FEET	SAMPLE NO.	BULK	DR/SPT	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING B-5** ELEV. (MSL.)**1511** DATE COMPLETED **9/26/2022** EQUIPMENT**CME75** BY: **L. WEIDMAN**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
							MATERIAL DESCRIPTION			
30	B-5@30						-Becomes very dense; more silt; Poorly-graded SAND lens (3")	74		
32										
34						SP	Poorly-graded SAND, medium dense, slightly moist, pale brown; fine to medium sand; trace coarse sand; few oxidation staining			
36	B-5@35							34		
							Total Depth = 36.5' Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 9/26/2022			

Figure 5,
Log of Boring B-5, Page 2 of 2

T2998-22-01 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. T2998-22-01

BORING P-1

ELEV. (MSL.) **1513** DATE COMPLETED **9/27/2022**

EQUIPMENT **CME75** BY: **L. WEIDMAN**

DEPTH IN FEET	SAMPLE NO.	BULK	DR/SPT	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0						SM	**TOPSOIL** Silty SAND, loose, moist, very dark brown; fine to medium sand; very silty			
2	P-1@1.5-2		■			SM	**ALLUVIUM (Qa)** Silty SAND, loose, moist, dark grayish brown; medium sand; some fine sand; some mica			

Total Depth = 2'
No groundwater encountered
Percolation Test Equipment set
Presaturated with 5 gallons of water
Backfilled with cuttings 9/27/2022

T2998-22-01 BORING LOGS.GPJ

Figure 6,
Log of Boring P-1, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. T2998-22-01

DEPTH IN FEET	SAMPLE NO.	BULK	DR/SPT	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P-2** ELEV. (MSL.) **1505** DATE COMPLETED **9/27/2022** EQUIPMENT **CME75** BY: **L. WEIDMAN**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
							MATERIAL DESCRIPTION			
0						ML	**ALLUVIUM (Qa)** SILT, stiff, slightly moist, dark brown; fine sand; little mica; AC chunks and gravel at surface			
2										
4						SM	Silty SAND, slightly moist, light grayish brown; fine to medium sand; few coarse sand; little mica			
6										
8										
10	P-2@9-10		■				Total Depth = 10' No groundwater encountered Percolation Test Equipment set Presaturated with 5 gallons of water Backfilled with cuttings 9/27/2022			

Figure 7,
Log of Boring P-2, Page 1 of 1

T2998-22-01 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. T2998-22-01

DEPTH IN FEET	SAMPLE NO.	BULK	DR/SPT	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P-3** ELEV. (MSL.) **1511** DATE COMPLETED **9/27/2022** EQUIPMENT **CME75** BY: **L. WEIDMAN**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
							MATERIAL DESCRIPTION			
0						ML	**TOPSOIL** SILT, soft, slightly moist, very dark brown; fine to medium sand			
						SM	**ALLUVIUM (Qa)**			
2	P-3@1.5-2		■				Silty SAND, loose, slightly moist, dark grayish brown; fine to medium sand; little mica			
							Total Depth = 2' No groundwater encountered Percolation Test Equipment set Presaturated with 5 gallons of water Backfilled with cuttings 9/27/2022			

Figure 8,
Log of Boring P-3, Page 1 of 1

T2998-22-01 BORING LOGS.GPJ

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

⊠ ... DISTURBED OR BAG SAMPLE ◪ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. T2998-22-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P-4** ELEV. (MSL.)**1511** DATE COMPLETED **9/27/2022** EQUIPMENT **CME75** BY: **L. WEIDMAN**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
	BULK / DR/SPT				MATERIAL DESCRIPTION			
0				ML	**TOPSOIL** SILT, soft, slightly moist, dark brown; fine to medium sand			
				ML	**ALLUVIUM (Qa)**			
2	P-4@1.5-2				Sandy SILT, soft, slightly moist, dark gray brown; fine to medium sand			
					Total Depth = 2' No groundwater encountered Percolation Test Equipment set Presaturated with 5 gallons of water Backfilled with cuttings 9/27/2022			

Figure 9,
Log of Boring P-4, Page 1 of 1

T2998-22-01 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PERCOLATION TEST REPORT							
Project Name:		Ramona San Jacinto			**Project No.:**		T2998-22-01
Test Hole No.:		P-1			**Date Excavated:**		9/26/2022
Length of Test Pipe:			24.0	inches	**Soil Classification:**		SM
Height of Pipe above Ground:			0.0	inches	**Presoak Date:**		9/26/2022
Depth of Test Hole:			24.0	inches	**Perc Test Date:**		9/27/2022
Check for Sandy Soil Criteria Tested by:				Weidman	**Percolation Tested by:**		Weidman
Water level measured from BOTTOM of hole							
Sandy Soil Criteria Test							
Trial No.	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
		Interval	**Elapsed**	**Level**	**Level**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	8:30 AM 8:55 AM	25	25	24.0	20.3	3.7	6.7
2	8:55 AM 9:20 AM	25	50	24.0	22.4	1.6	16.0
			Soil Criteria: Normal				
			Percolation Test				
Reading	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
No.		**Interval**	**Elapsed**	**Head**	**Head**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	9:20 AM 9:50 AM	30	30	24.0	22.0	2.0	14.7
2	9:50 AM 10:20 AM	30	60	24.0	22.8	1.2	25.0
3	10:20 AM 10:50 AM	30	90	24.0	22.7	1.3	22.7
4	10:50 AM 11:20 AM	30	120	24.0	22.6	1.4	20.8
5	11:20 AM 11:50 AM	30	150	24.0	22.8	1.2	25.0
6	11:50 AM 12:20 PM	30	180	24.0	22.6	1.4	20.8
7	12:20 PM 12:50 PM	30	210	24.0	22.8	1.2	25.0
8	12:50 PM 1:20 PM	30	240	24.0	23.0	1.0	31.3
9	1:20 PM 1:50 PM	30	270	24.0	23.3	0.7	41.7
10	1:50 PM 2:20 PM	30	300	24.0	23.3	0.7	41.7
11	2:20 PM 2:50 PM	30	330	24.0	23.4	0.6	50.0
12	2:50 PM 3:20 PM	30	360	24.0	23.4	0.6	50.0
Infiltration Rate (in/hr):			0.1				
Radius of test hole (in):			4				**Figure A-10**
Average Head (in):			23.7				

PERCOLATION TEST REPORT							
Project Name:		Ramona San Jacinto			**Project No.:**		T2998-22-01
Test Hole No.:		P-2			**Date Excavated:**		9/26/2022
Length of Test Pipe:			120.0	inches	**Soil Classification:**		SM
Height of Pipe above Ground:			0.0	inches	**Presoak Date:**		9/26/2022
Depth of Test Hole:			120.0	inches	**Perc Test Date:**		9/27/2022
Check for Sandy Soil Criteria Tested by:				Weidman	**Percolation Tested by:**		Weidman
Water level measured from BOTTOM of hole							
Sandy Soil Criteria Test							
Trial No.	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
		Interval	**Elapsed**	**Level**	**Level**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	8:33 AM 8:58 AM	25	25	48.0	13.6	34.4	0.7
2	8:58 AM 9:23 AM	25	50	48.0	19.2	28.8	0.9
			Soil Criteria: Sandy				
			Percolation Test				
Reading	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
No.		**Interval**	**Elapsed**	**Head**	**Head**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	9:23 AM 9:33 AM	10	10	48.0	38.4	9.6	1.0
2	9:33 AM 9:43 AM	10	20	48.0	39.6	8.4	1.2
3	9:43 AM 9:53 AM	10	30	48.0	40.2	7.8	1.3
4	9:53 AM 10:03 AM	10	40	48.0	43.2	4.8	2.1
5	10:03 AM 10:13 AM	10	50	48.0	45.0	3.0	3.3
6	10:13 AM 10:23 AM	10	60	48.0	45.6	2.4	4.2
Infiltration Rate (in/hr):			0.6				
Radius of test hole (in):			4				**Figure A-11**
Average Head (in):			46.8				

PERCOLATION TEST REPORT							
Project Name:		Ramona San Jacinto			**Project No.:**		T2998-22-01
Test Hole No.:		P-3			**Date Excavated:**		9/26/2022
Length of Test Pipe:			24.0	inches	**Soil Classification:**		SM
Height of Pipe above Ground:			0.0	inches	**Presoak Date:**		9/26/2022
Depth of Test Hole:			24.0	inches	**Perc Test Date:**		9/27/2022
Check for Sandy Soil Criteria Tested by:				Weidman	**Percolation Tested by:**		Weidman
Water level measured from BOTTOM of hole							
Sandy Soil Criteria Test							
Trial No.	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
		Interval	**Elapsed**	**Level**	**Level**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	8:38 AM 9:03 AM	25	25	24.0	17.8	6.2	4.0
2	9:03 AM 9:28 AM	25	50	24.0	21.6	2.4	10.4
			Soil Criteria: Normal				
			Percolation Test				
Reading	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
No.		**Interval**	**Elapsed**	**Head**	**Head**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	9:28 AM 9:58 AM	30	30	24.0	21.6	2.4	12.5
2	9:58 AM 10:28 AM	30	60	24.0	22.4	1.6	19.2
3	10:28 AM 10:58 AM	30	90	24.0	22.6	1.4	20.8
4	10:58 AM 11:28 AM	30	120	24.0	22.6	1.4	20.8
5	11:28 AM 11:58 AM	30	150	24.0	22.6	1.4	20.8
6	11:58 AM 12:28 PM	30	180	24.0	22.2	1.8	16.7
7	12:28 PM 12:58 PM	30	210	24.0	22.8	1.2	25.0
8	12:58 PM 1:28 PM	30	240	24.0	23.0	1.0	31.3
9	1:28 PM 1:58 PM	30	270	24.0	23.3	0.7	41.7
10	1:58 PM 2:28 PM	30	300	24.0	23.3	0.7	41.7
11	2:28 PM 2:58 PM	30	330	24.0	23.3	0.7	41.7
12	2:58 PM 3:28 PM	30	360	24.0	23.3	0.7	41.7
Infiltration Rate (in/hr):			0.1				
Radius of test hole (in):			4				**Figure A-12**
Average Head (in):			23.6				

PERCOLATION TEST REPORT							
Project Name:		Ramona San Jacinto			**Project No.:**		T2998-22-01
Test Hole No.:		P-4			**Date Excavated:**		9/26/2022
Length of Test Pipe:			24.0	inches	**Soil Classification:**		ML
Height of Pipe above Ground:			0.0	inches	**Presoak Date:**		9/26/2022
Depth of Test Hole:			24.0	inches	**Perc Test Date:**		9/27/2022
Check for Sandy Soil Criteria Tested by:				Weidman	**Percolation Tested by:**		Weidman
Water level measured from BOTTOM of hole							
Sandy Soil Criteria Test							
Trial No.	**Time**	**Time Interval (min)**	**Total Elapsed Time (min)**	**Initial Water Level (in)**	**Final Water Level (in)**	**Δ in Water Level (in)**	**Percolation Rate (min/inch)**
1	8:30 AM 8:55 AM	25	25	24.0	17.9	6.1	4.1
2	8:55 AM 9:20 AM	25	50	24.0	20.4	3.6	6.9
			Soil Criteria: Normal				
			Percolation Test				
Reading No.	**Time**	**Time Interval (min)**	**Total Elapsed Time (min)**	**Initial Water Head (in)**	**Final Water Head (in)**	**Δ in Water Level (in)**	**Percolation Rate (min/inch)**
1	9:20 AM 9:50 AM	30	30	24.0	20.6	3.4	8.9
2	9:50 AM 10:20 AM	30	60	24.0	21.1	2.9	10.4
3	10:20 AM 10:50 AM	30	90	24.0	21.6	2.4	12.5
4	10:50 AM 11:20 AM	30	120	24.0	21.8	2.2	13.9
5	11:20 AM 11:50 AM	30	150	24.0	22.2	1.8	16.7
6	11:50 AM 12:20 PM	30	180	24.0	23.0	1.0	31.3
7	12:20 PM 12:50 PM	30	210	24.0	22.8	1.2	25.0
8	12:50 PM 1:20 PM	30	240	24.0	22.7	1.3	22.7
9	1:20 PM 1:50 PM	30	270	24.0	22.8	1.2	25.0
10	1:50 PM 2:20 PM	30	300	24.0	22.7	1.3	22.7
11	2:20 PM 2:50 PM	30	330	24.0	22.8	1.2	25.0
12	2:50 PM 3:20 PM	30	360	24.0	22.8	1.2	25.0
Infiltration Rate (in/hr):			0.2				
Radius of test hole (in):			4				**Figure A-13**
Average Head (in):			23.4				

APPENDIX B

APPENDIX B

LABORATORY TESTING

We performed laboratory tests in accordance with current, generally accepted test methods of ASTM International (ASTM) or other suggested procedures. We analyzed selected soil samples for in-situ density and moisture content, maximum dry density and optimum moisture content, corrosivity, grain size distribution, expansion potential, consolidation, and direct shear strength. The results of the laboratory tests are presented on Figures B-1 through B-32. The in-place dry density and moisture content of the samples tested are presented on the boring logs in *Appendix A*.

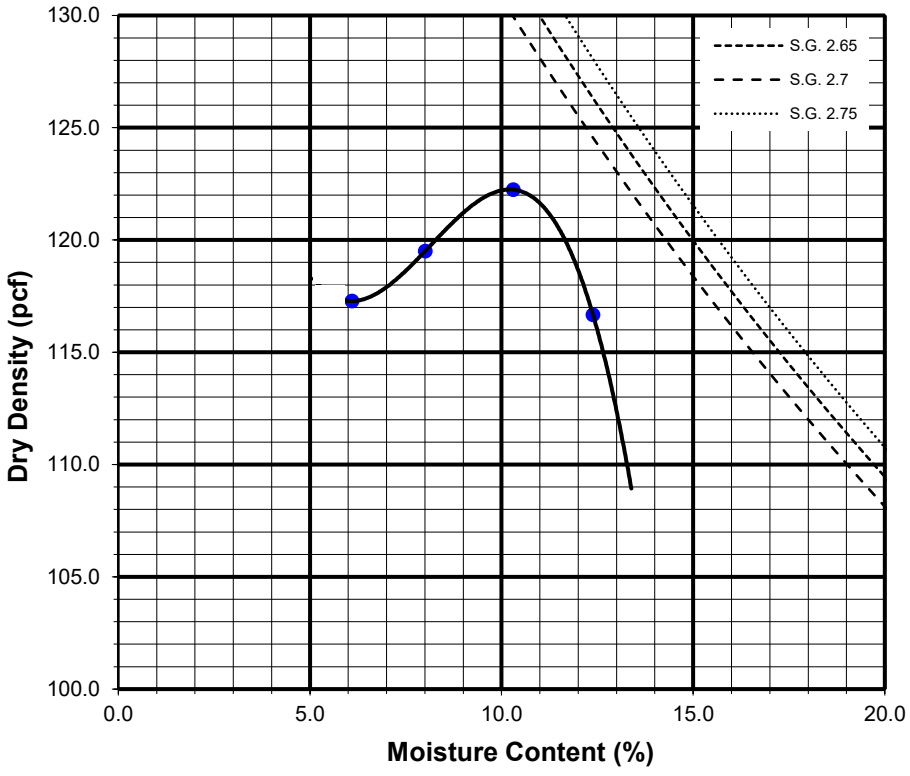
Sample No:

B-2@2-7	Silty SAND (SM), olive gray

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6139	6209	6296	6240		
Weight of Mold	(g)	4259	4259	4259	4259		
Net Weight of Soil	(g)	1880	1950	2037	1981		
Wet Weight of Soil + Cont.	(g)	690.7	655.9	818.6	810.9		
Dry Weight of Soil + Cont.	(g)	665.8	626.0	766.3	750.0		
Weight of Container	(g)	257.3	252.6	259.0	258.3		
Moisture Content	(%)	6.1	8.0	10.3	12.4		
Wet Density	(pcf)	124.4	129.1	134.8	131.1		
Dry Density	(pcf)	117.3	119.5	122.2	116.7		

Maximum Dry Density (pcf)	122.0

Optimum Moisture Content (%)	10.0



Preparation Method: A

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COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

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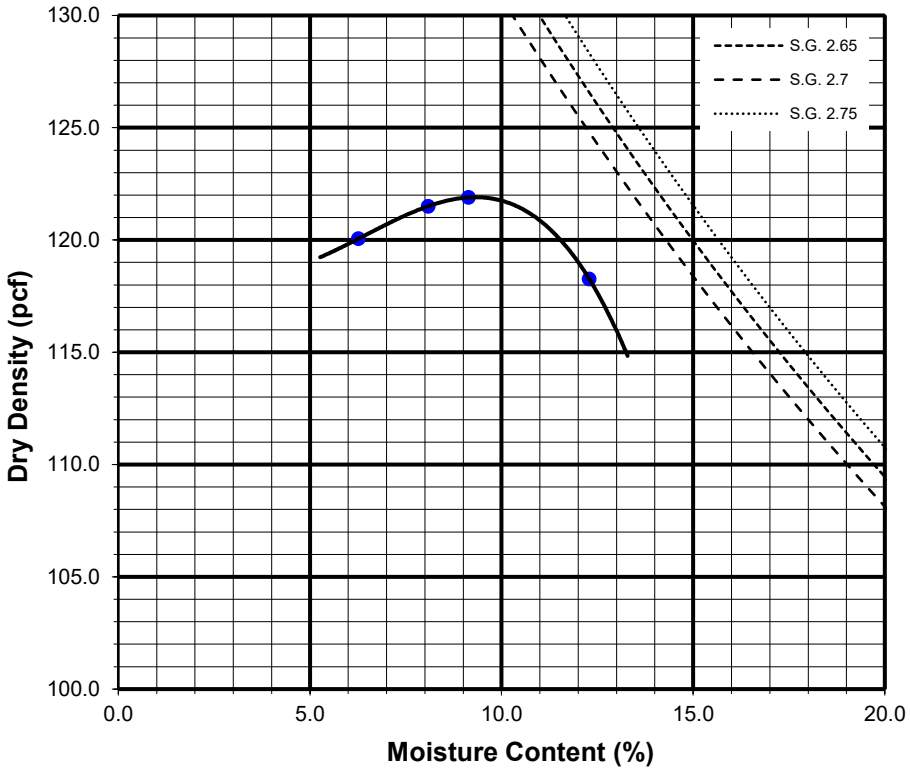
Nov 22 Figure B-1

Sample No:

B-4@2-7	Silty SAND (SM), dark brown

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6243	6269	6265	6187		
Weight of Mold	(g)	4259	4259	4259	4259		
Net Weight of Soil	(g)	1984	2009	2006	1927		
Wet Weight of Soil + Cont.	(g)	705.9	575.6	679.6	653.9		
Dry Weight of Soil + Cont.	(g)	672.5	548.7	633.4	630.4		
Weight of Container	(g)	259.2	254.2	257.4	255.4		
Moisture Content	(%)	8.1	9.1	12.3	6.3		
Wet Density	(pcf)	131.3	133.0	132.8	127.6		
Dry Density	(pcf)	121.5	121.9	118.3	120.1		

Maximum Dry Density (pcf)	122.0	Optimum Moisture Content (%)	9.0



Preparation Method: A

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COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

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Nov 22 Figure B-2

B1@0-5

MOLDED SPECIMEN		BEFORE TEST	AFTER TEST
Specimen Diameter	(in.)	4.0	4.0
Specimen Height	(in.)	1.0	1.0
Wt. Comp. Soil + Mold	(gm)	606.5	632.2
Wt. of Mold	(gm)	200.4	200.4
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	473.2	632.2
Dry Wt. of Soil + Cont.	(gm)	447.9	371.9
Wt. of Container	(gm)	173.2	200.4
Moisture Content	(%)	9.2	16.1
Wet Density	(pcf)	122.5	130.1
Dry Density	(pcf)	112.2	112.0
Void Ratio		0.5	0.5
Total Porosity		0.3	0.3
Pore Volume	(cc)	69.3	71.5
Degree of Saturation	(%) [S_{meas}]	49.8	83.8

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
9/30/2022	10:00	1.0	0	0.3267
9/30/2022	10:10	1.0	10	0.3266
Add Distilled Water to the Specimen				
10/1/2022	10:00	1.0	1430	0.3376
10/1/2022	11:00	1.0	1490	0.3376

Expansion Index (EI meas) =	11
Expansion Index (Report) =	11

Expansion Index, EI_{50}	CBC CLASSIFICATION *	UBC CLASSIFICATION **
0-20	Non-Expansive	Very Low
21-50	Expansive	Low
51-90	Expansive	Medium
91-130	Expansive	High
>130	Expansive	Very High

* Reference: 2019 California Building Code, Section 1803.5.3

** Reference: 1997 Uniform Building Code, Table 18-I-B.

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EXPANSION INDEX TEST RESULTS

ASTM D-4829

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Nov 22 Figure B-3

SUMMARY OF LABORATORY
POTENTIAL OF HYDROGEN (pH) AND RESISTIVITY TEST RESULTS
AASHTO T289 ASTM D4972 and AASHTO T288 ASTM G187

Sample No.	pH	Resistivity (ohm centimeters)
B1@0-5	9.3	2300

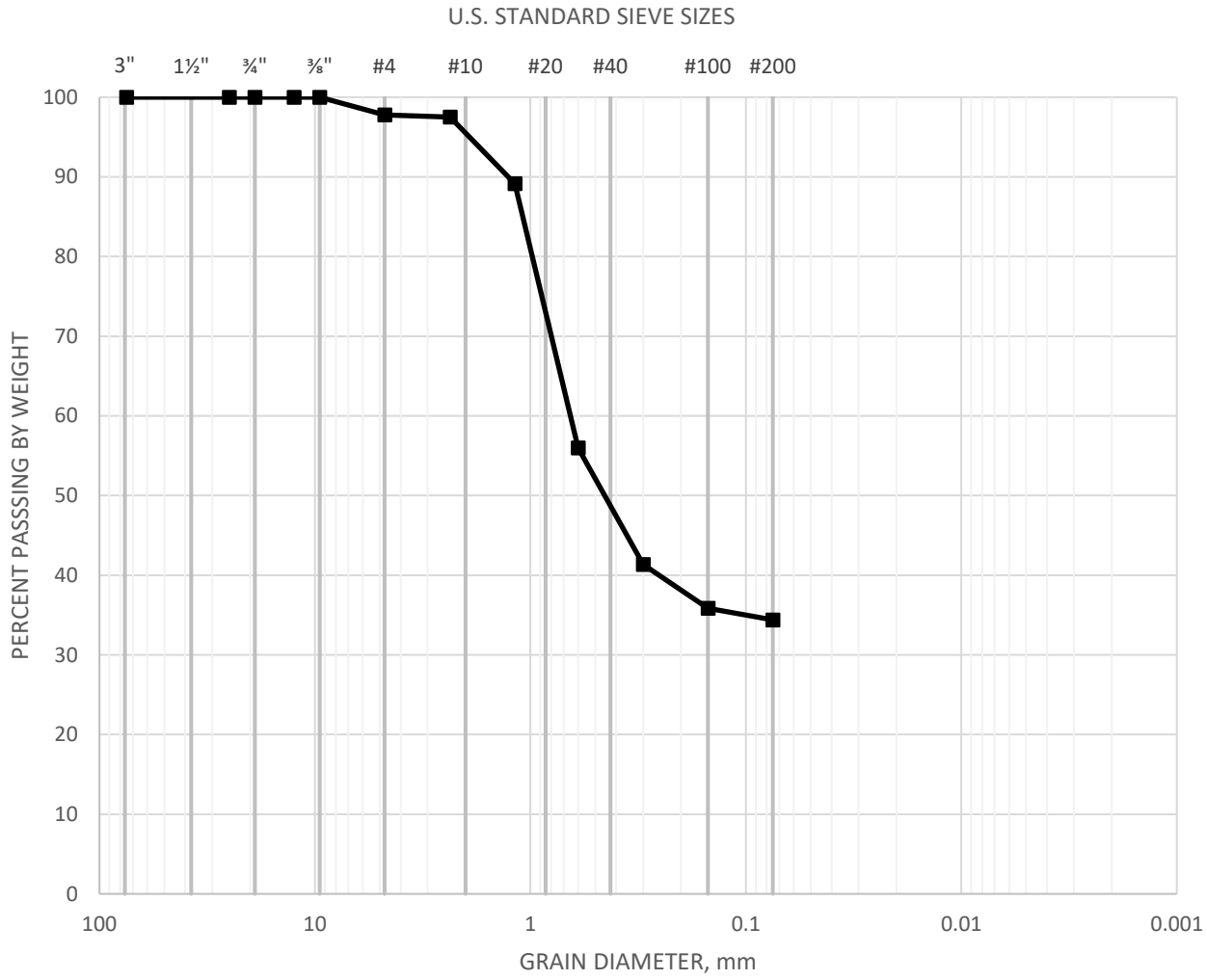
SUMMARY OF LABORATORY CHLORIDE CONTENT TEST RESULTS
AASHTO T291 ASTM C1218

Sample No.	Chloride Ion Content (%)
B1@0-5	0.015

SUMMARY OF LABORATORY WATER SOLUBLE SULFATE TEST RESULTS
AASHTO T290 ASTM C1580

Sample No.	Water Soluble Sulfate (% SO_4)	Sulfate Exposure
B1@0-5	0.001	S0

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	D60	D30	D10
P1@1.5-2.0	Silty SAND (SM), dark grayish brown	0.63	0.073	0.073

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GRAIN SIZE DISTRIBUTION

ASTM D 6913

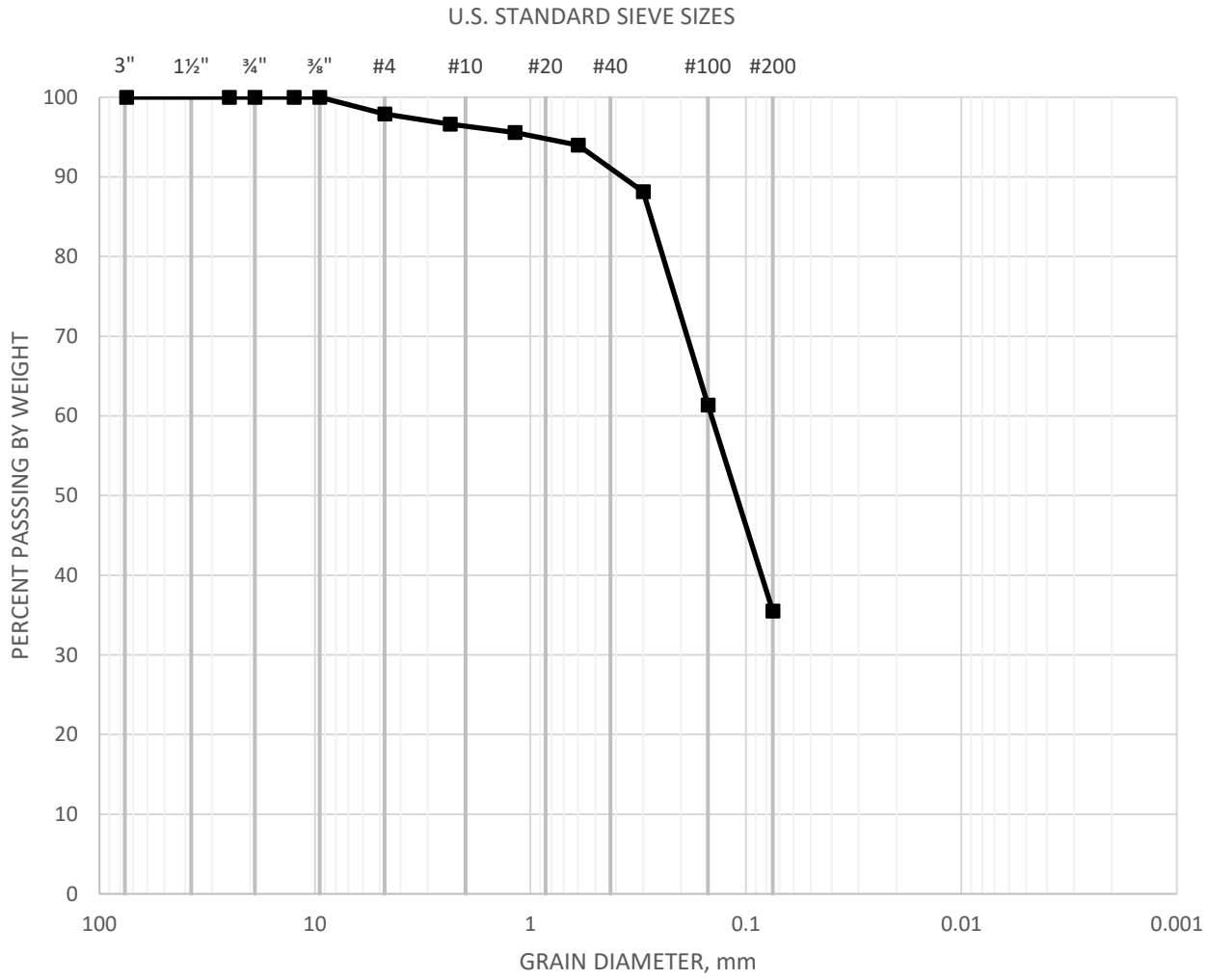
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Nov 22 Figure B-5

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	D60	D30	D10
P2@9-10	Silty SAND (SM), light grayish brown	0.14	0.073	0.073

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GRAIN SIZE DISTRIBUTION

ASTM D 6913

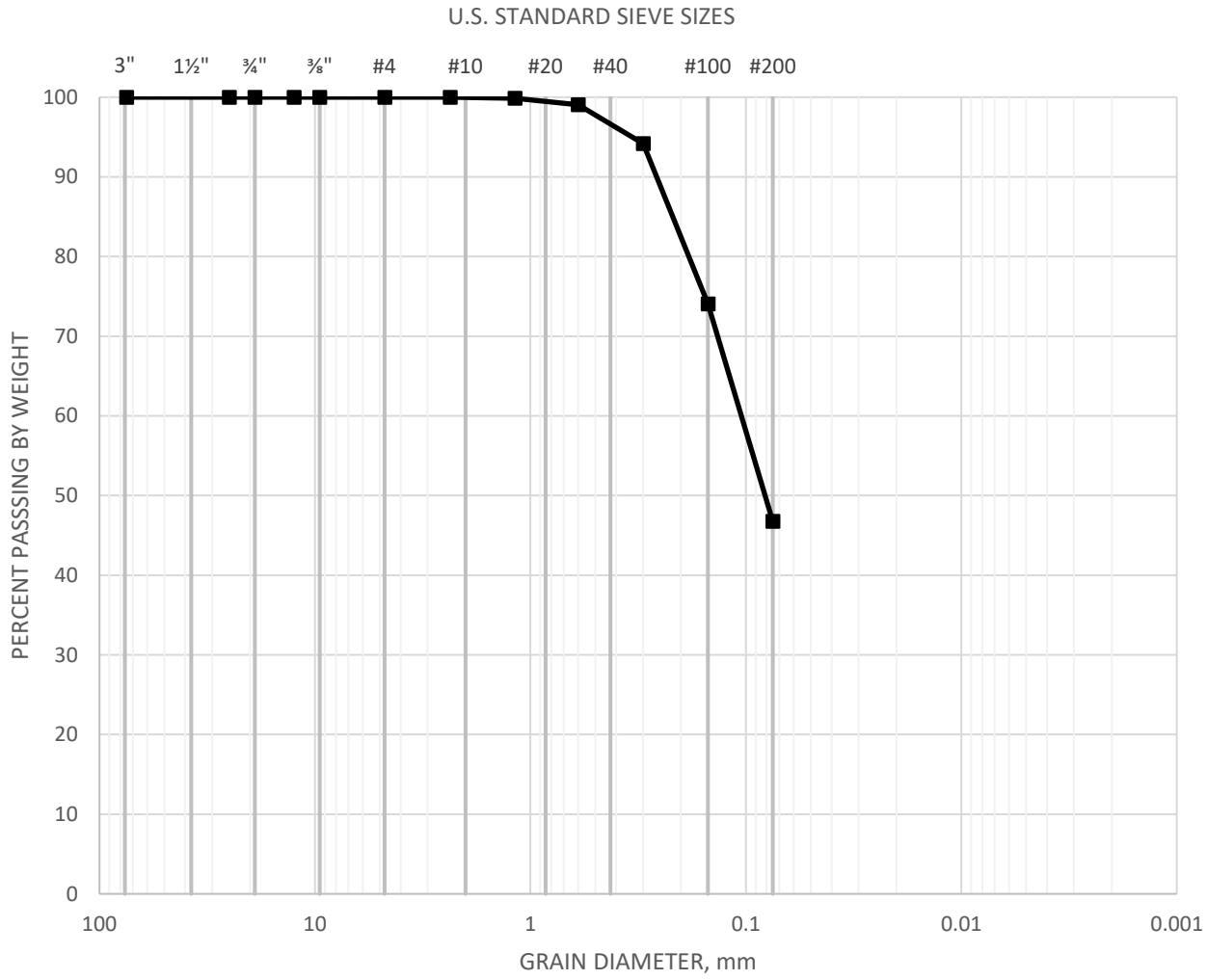
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Nov 22 Figure B-6

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	D60	D30	D10
P3@1.5-2.0	Silty SAND (SM), dark grayish brown	0.1	0.073	0.073

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GRAIN SIZE DISTRIBUTION

ASTM D 6913

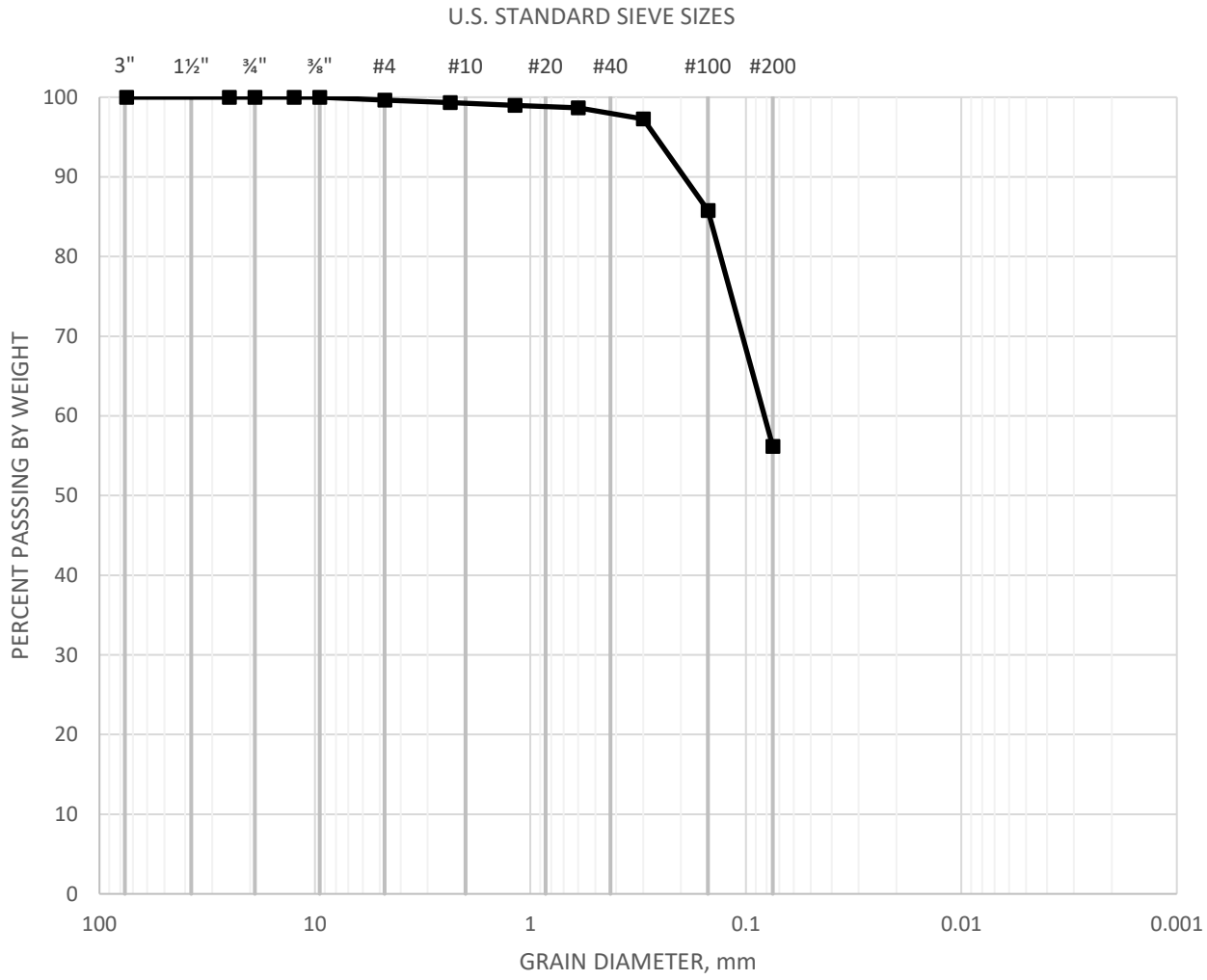
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Nov 22 Figure B-7

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	D60	D30	D10
P4@1.5-2.0	SILT with Sand (ML), dark grayish brown	0.08	0.073	0.073

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GRAIN SIZE DISTRIBUTION

ASTM D 6913

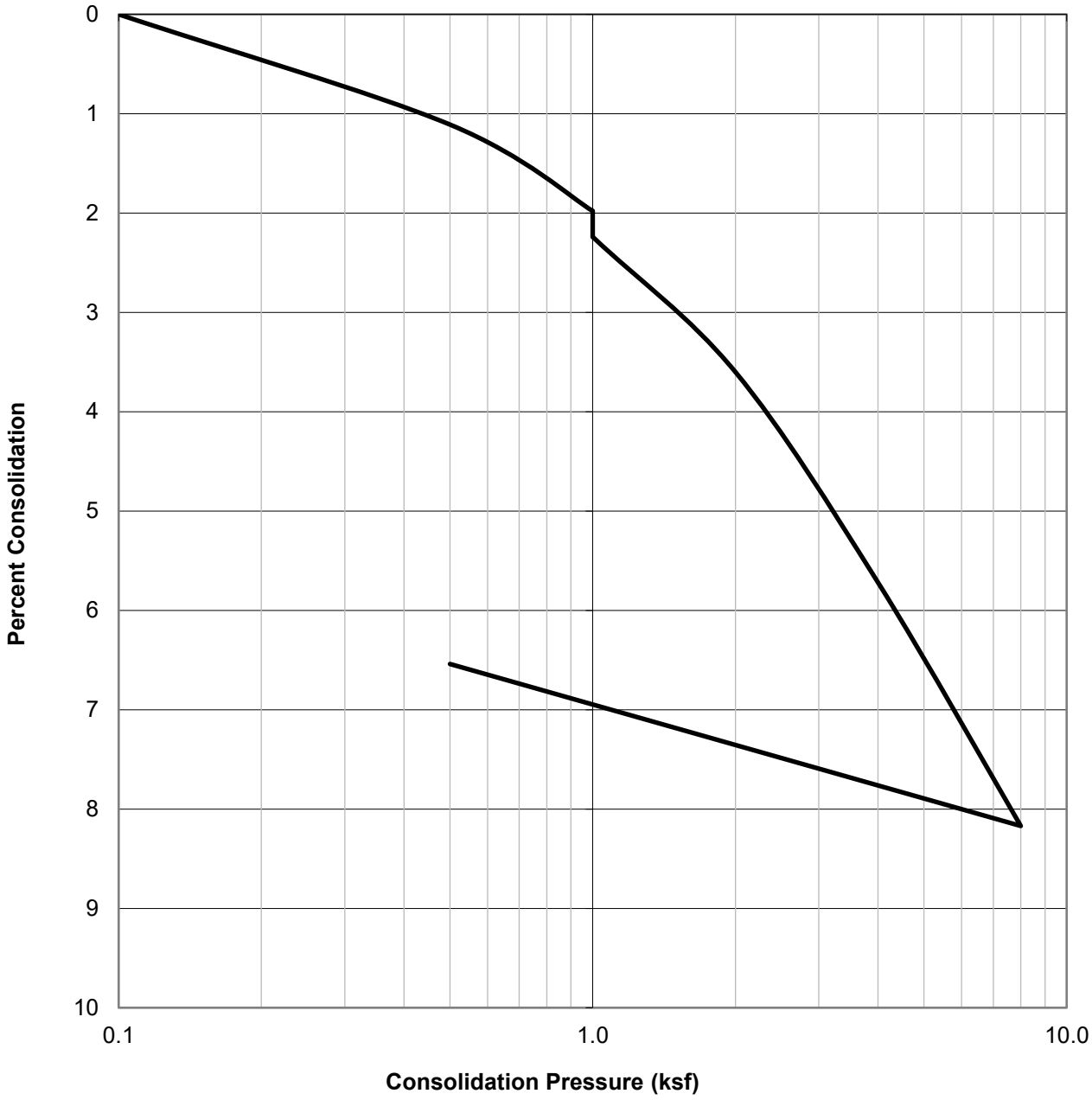
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Nov 22 Figure B-8

WATER ADDED AT 1.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@5	SILT with Sand (ML), olive brown	95.2	24.2	24.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

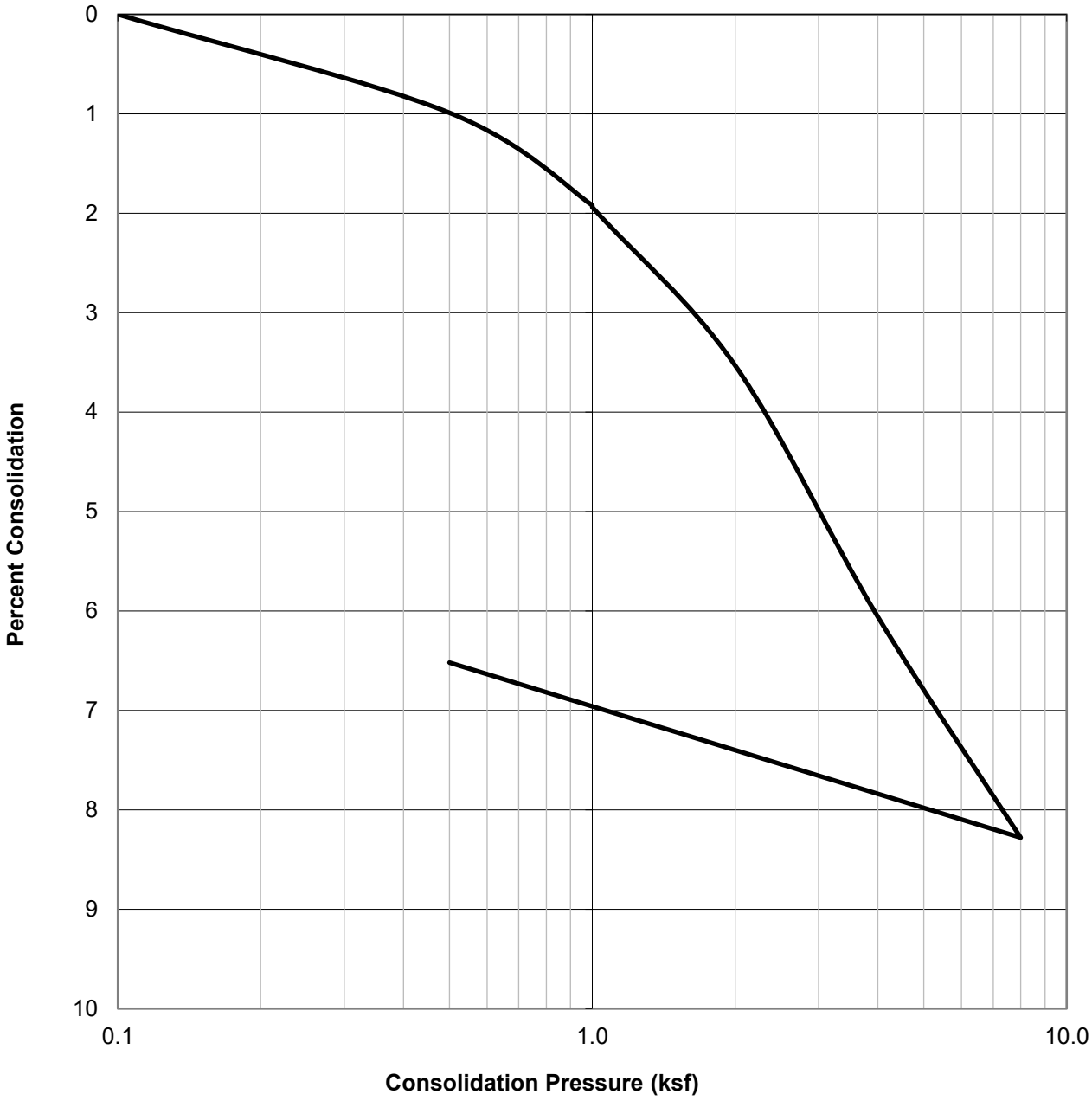
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Nov 22 Figure B-9

WATER ADDED AT 1.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@7.5	SILT with Sand (ML), olive brown	99.8	23.2	22.5

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

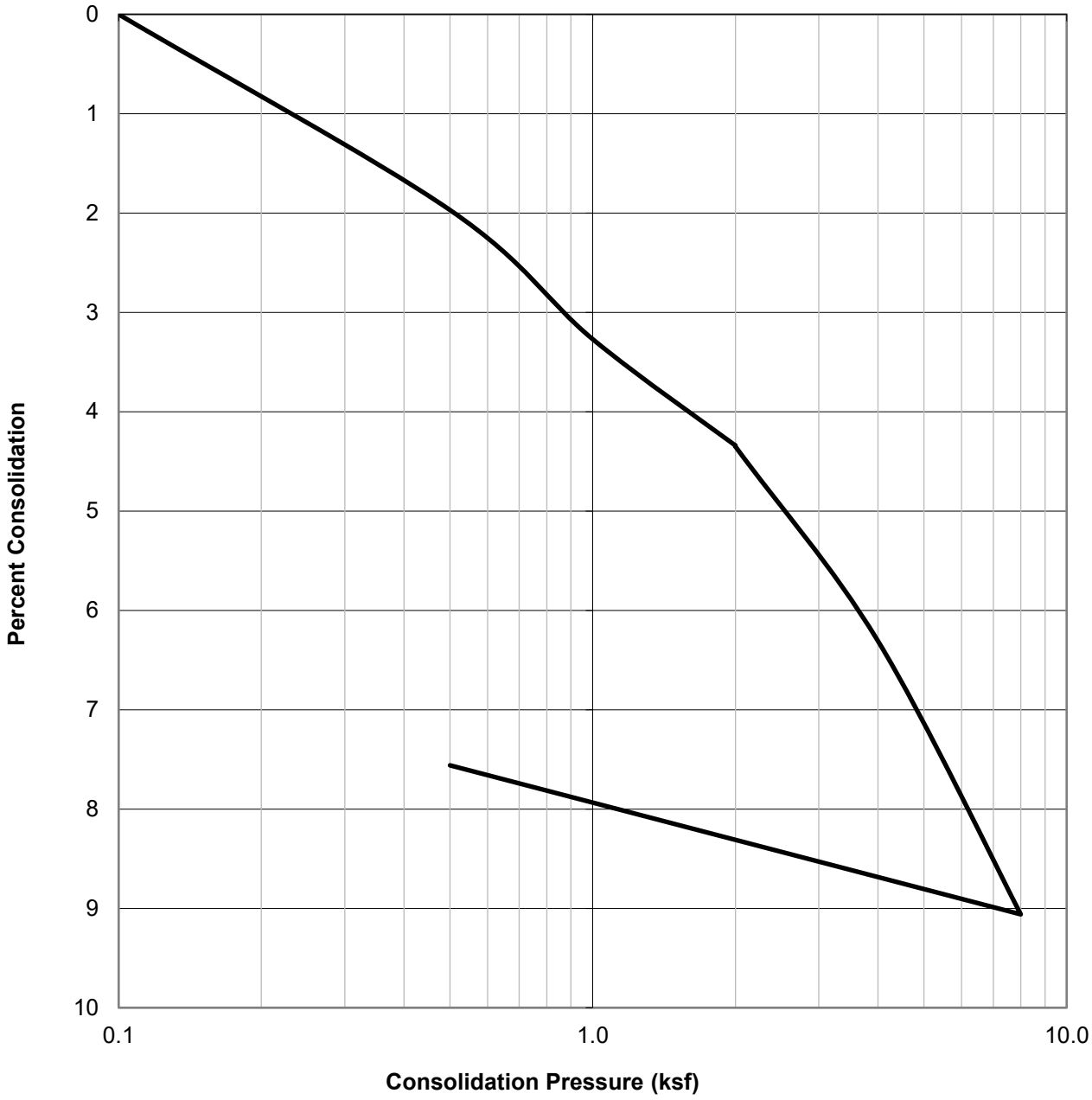
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Project No.: T2998-22-01

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Nov 22 Figure B-10

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@10	SILT with Sand (ML), olive brown	91.4	30.0	27.7

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

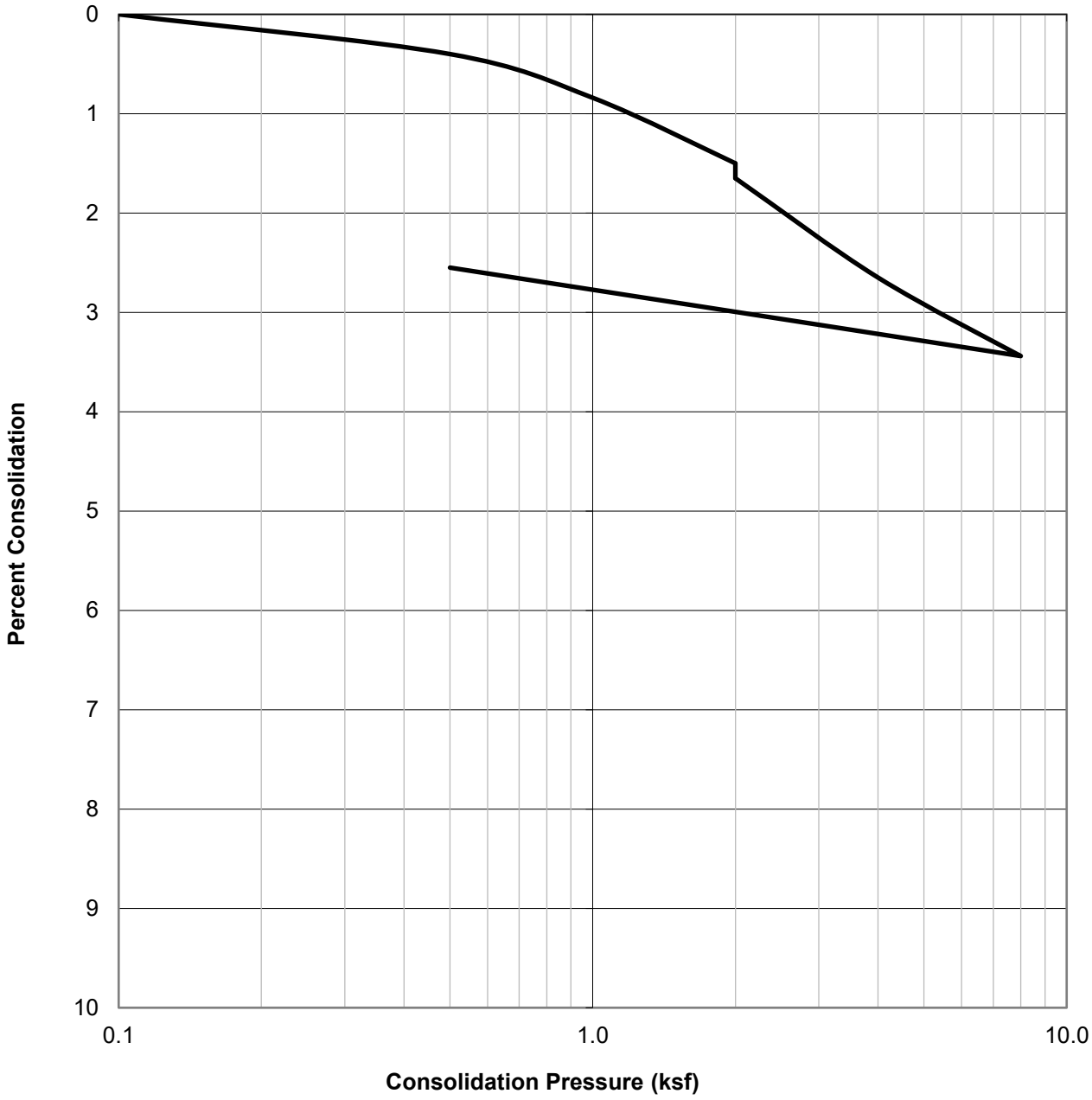
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Project No.: T2998-22-01

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Nov 22 Figure B-11

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@15	Poorly Graded SAND with Silt (SP-SM), light olive gray	92.3	21.0	27.1

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

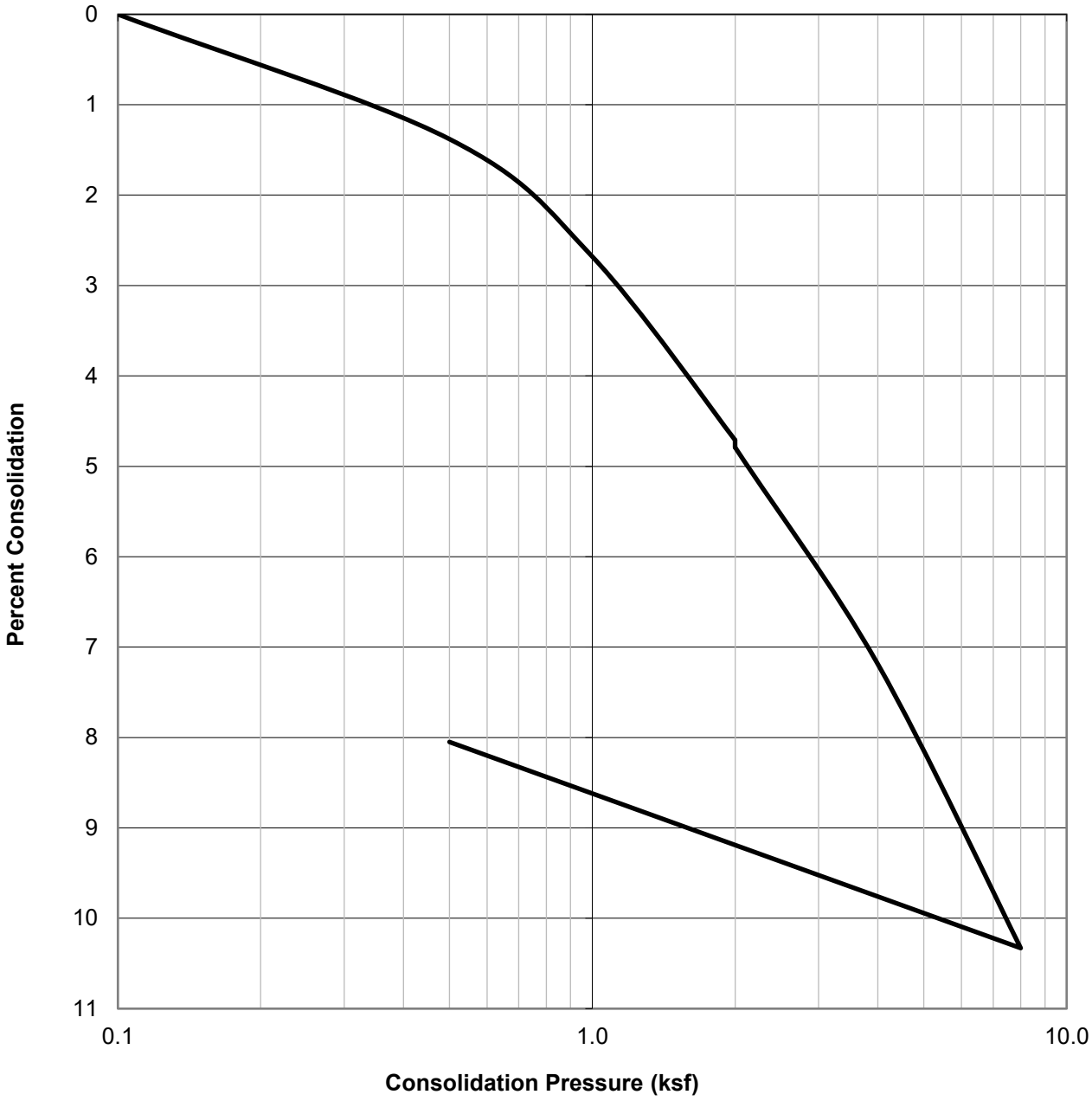
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Nov 22 Figure B-12

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@20	CLAY (CL), dark olive gray	90.0	28.7	29.4

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

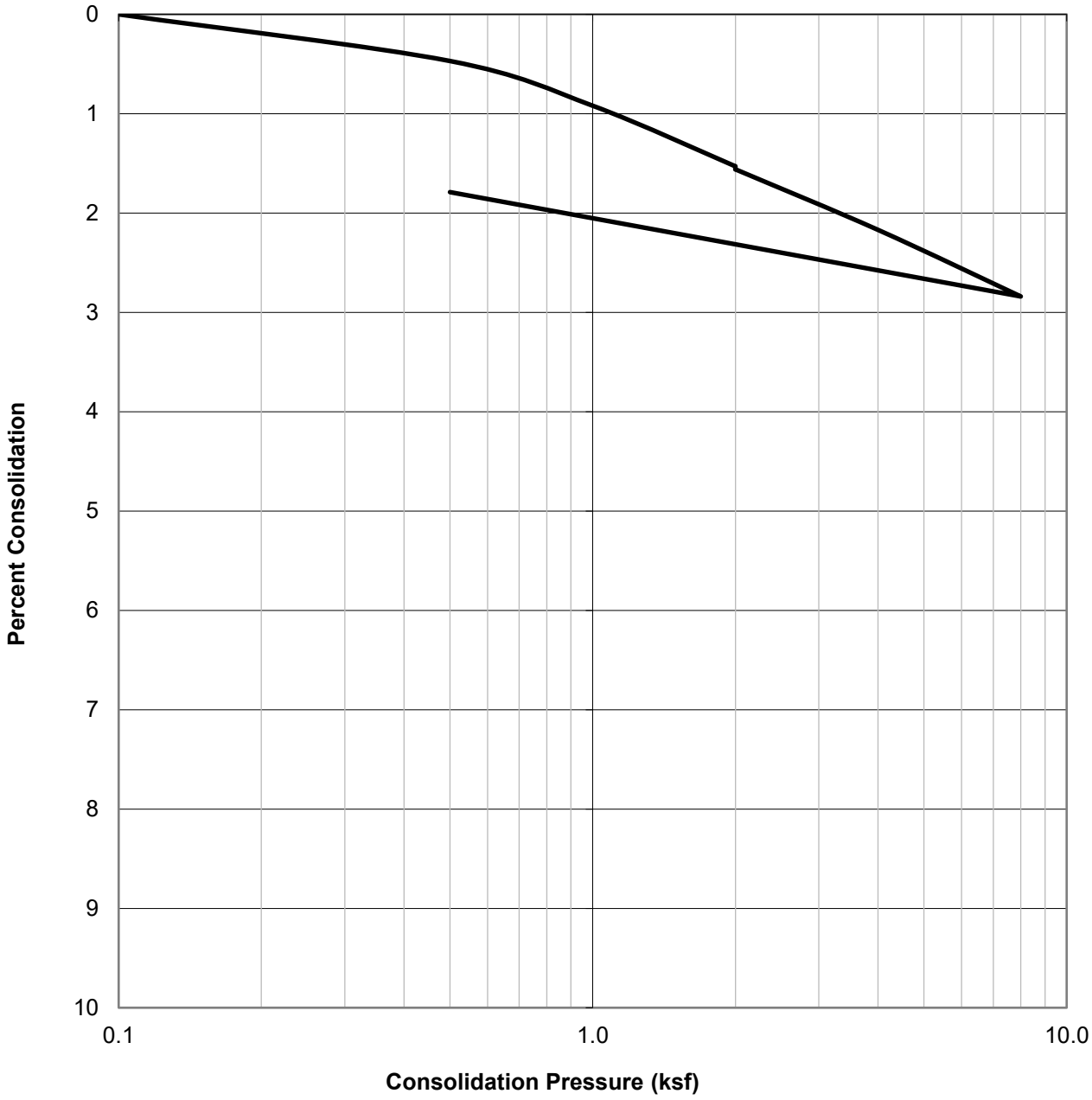
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Nov 22 Figure B-13

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B2@2-7	Silty SAND (SM), olive gray	109.3	11.1	19.0

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

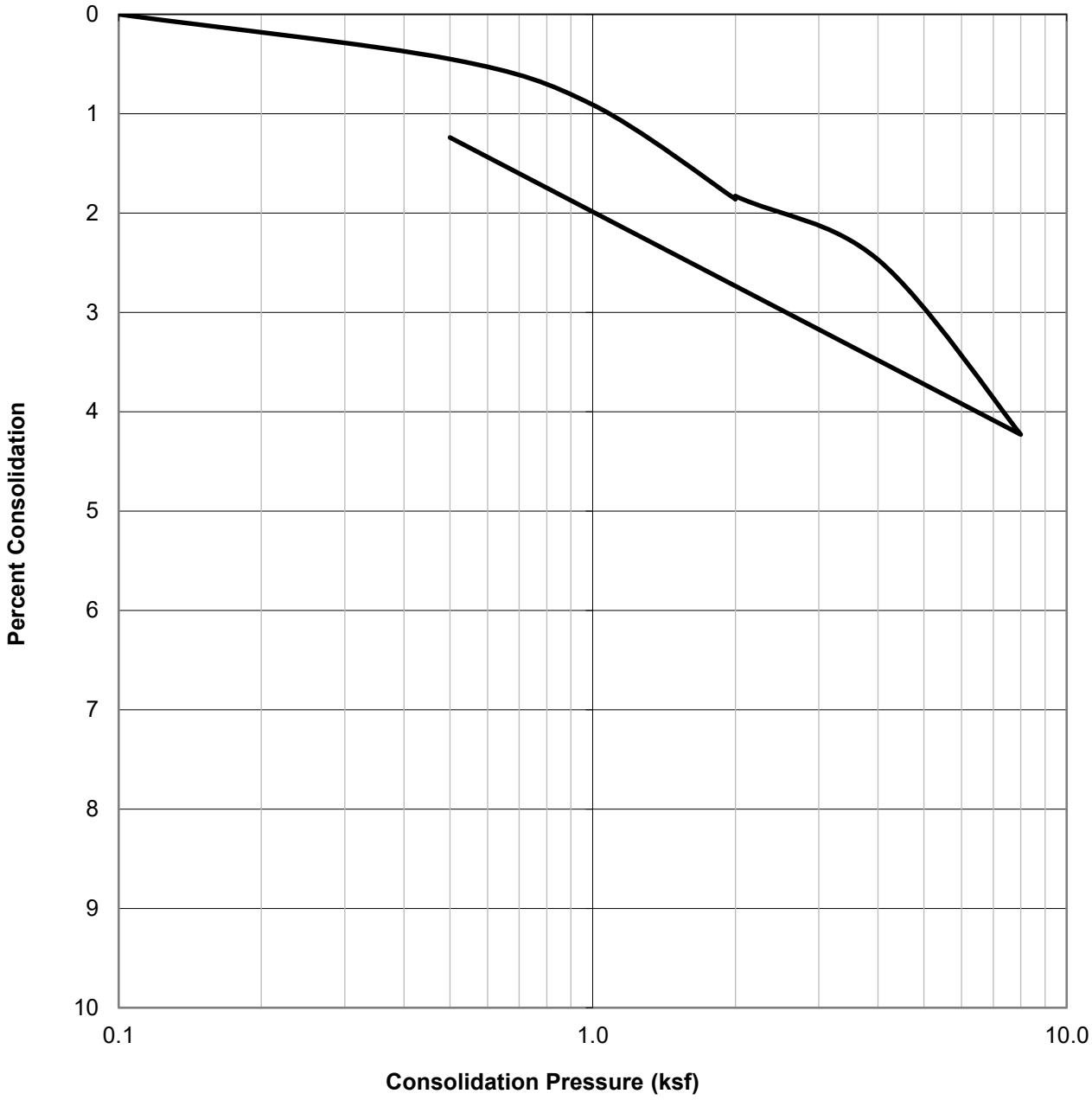
Checked by:

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Nov 22 Figure B-14

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B2@10	Silty SAND (SM), olive gray	98.3	22.3	33.0

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

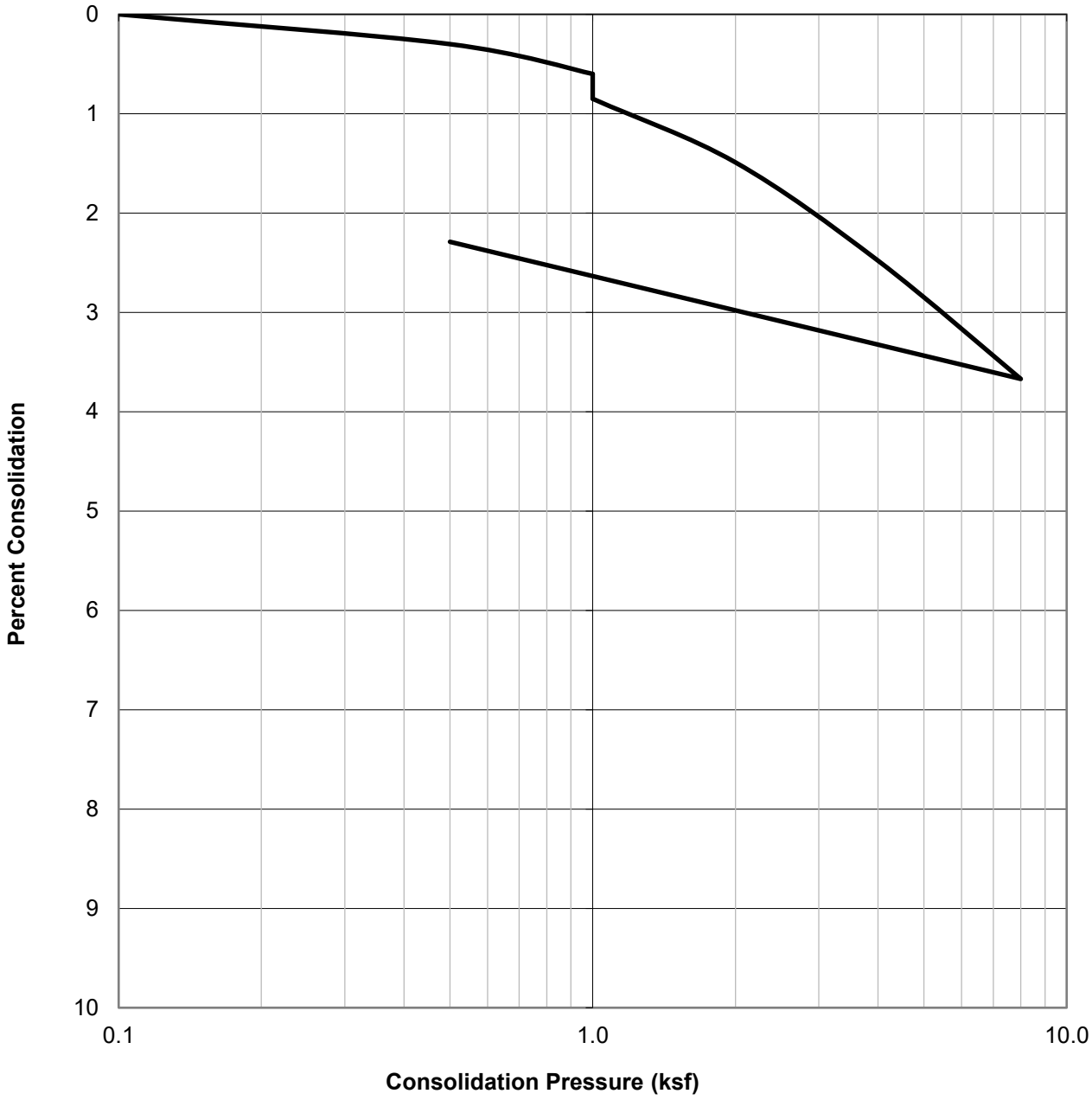
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Project No.: T2998-22-01

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Nov 22 Figure B-15

WATER ADDED AT 1.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B3@5	Silty SAND (SM), olive gray	105.9	15.1	18.7

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

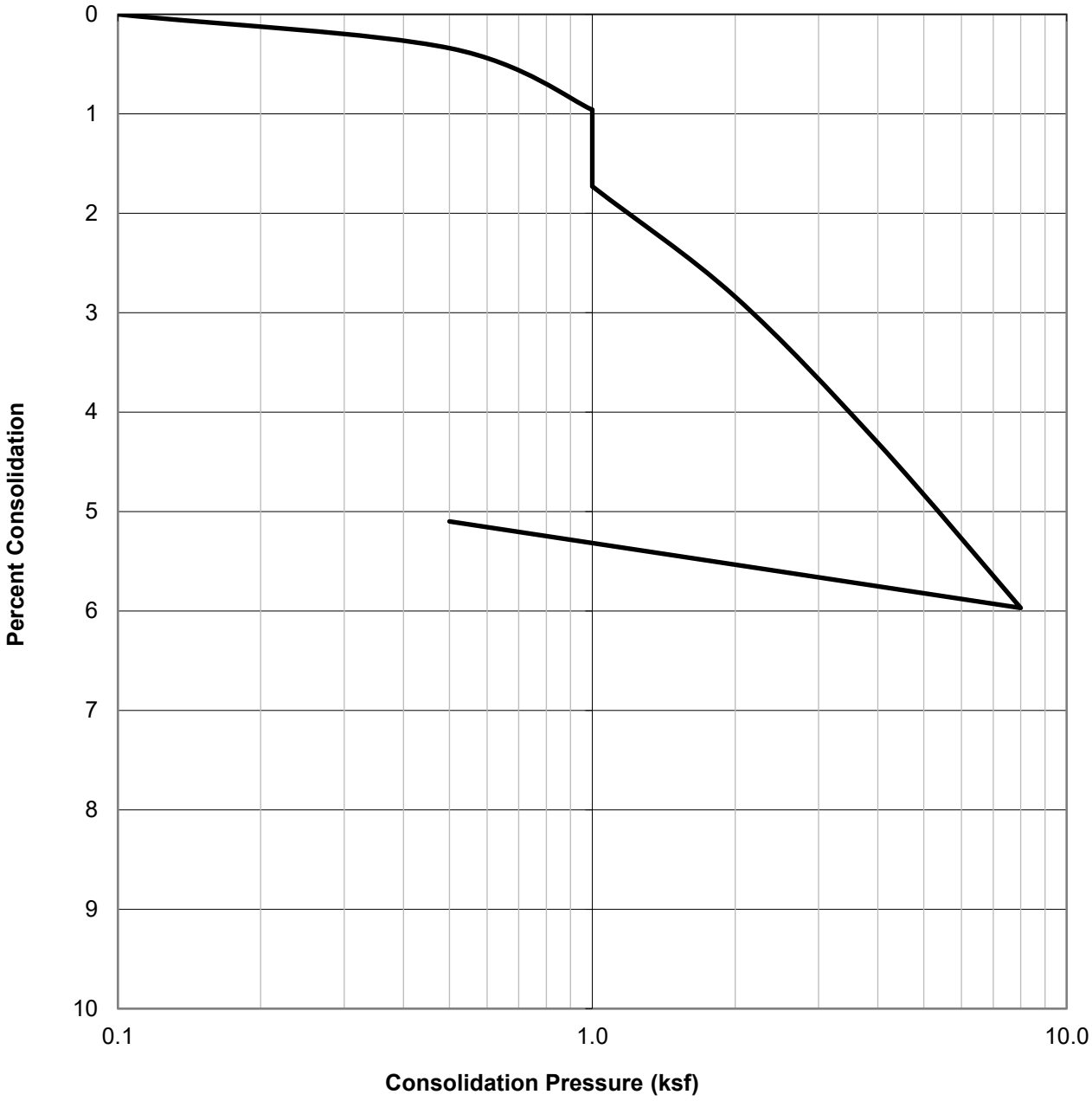
Checked by:

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Nov 22 Figure B-16

WATER ADDED AT 1.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B3@7.5	Silty SAND (SM), olive gray	101.5	9.6	18.9

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

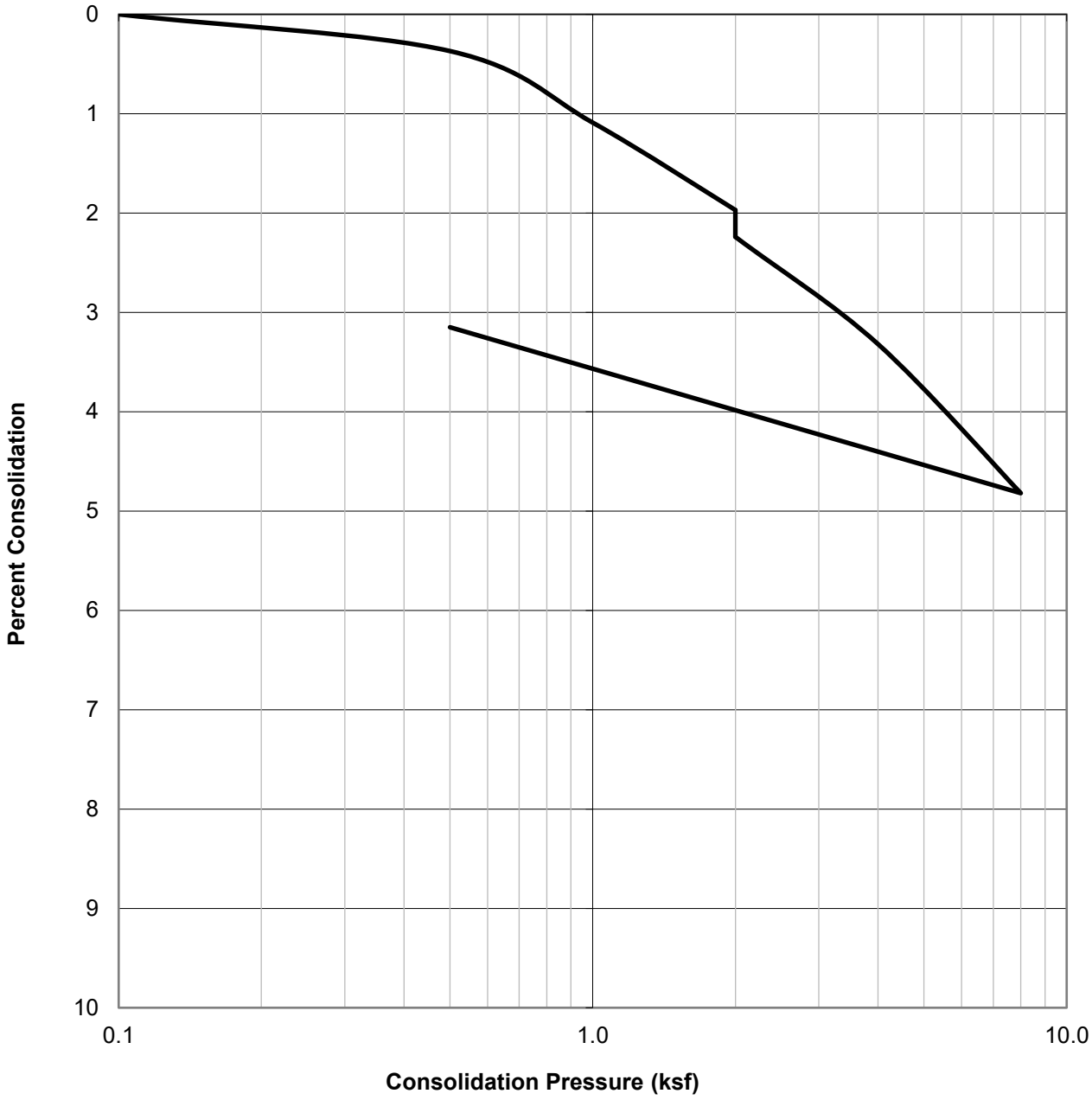
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Nov 22 Figure B-17

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B3@10	Silty SAND (SM), dark olive gray	92.9	19.3	28.3

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

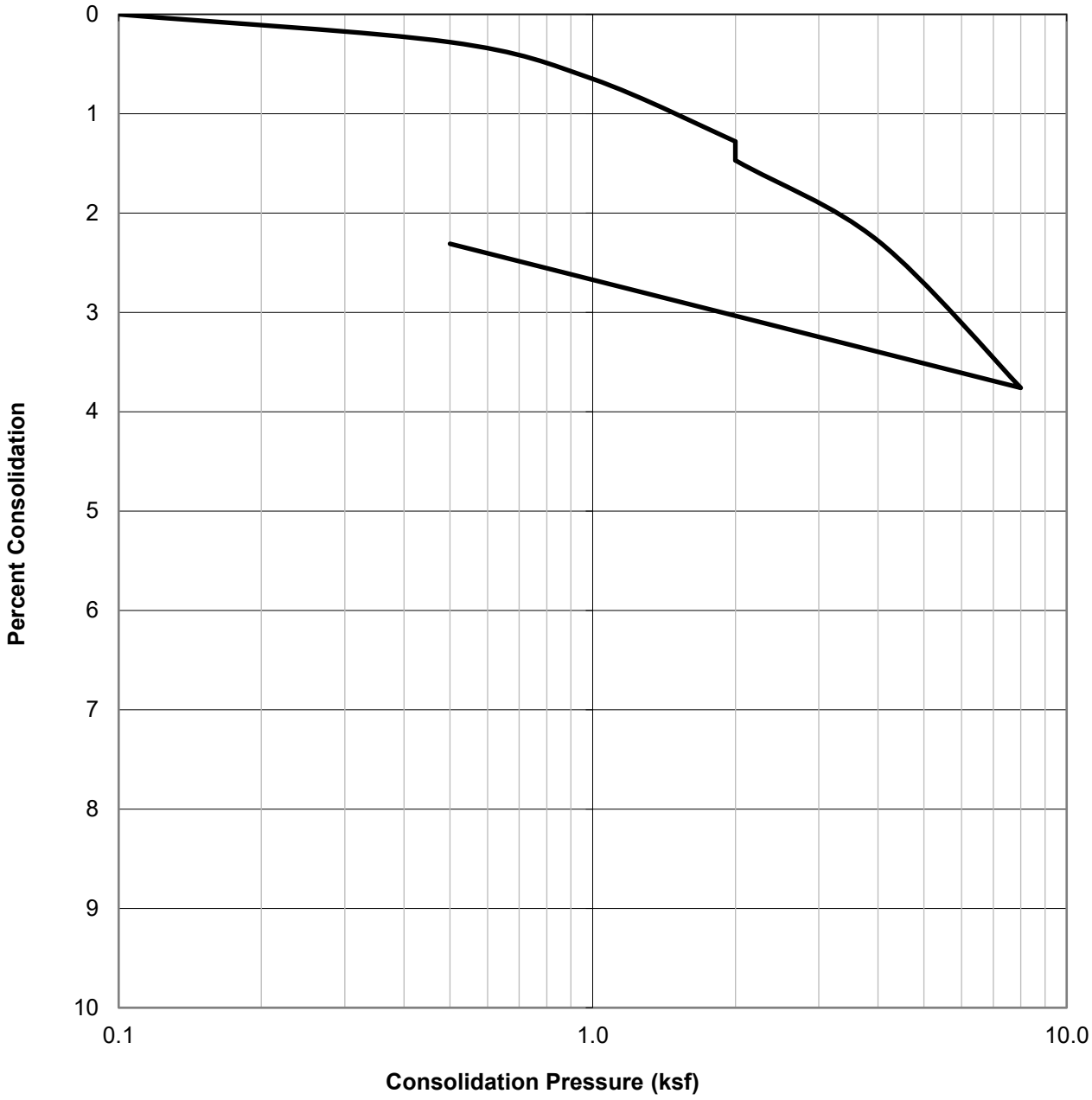
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Nov 22 Figure B-18

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B4@2-7	Silty SAND (SM), dark brown	109.0	9.5	20.9

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

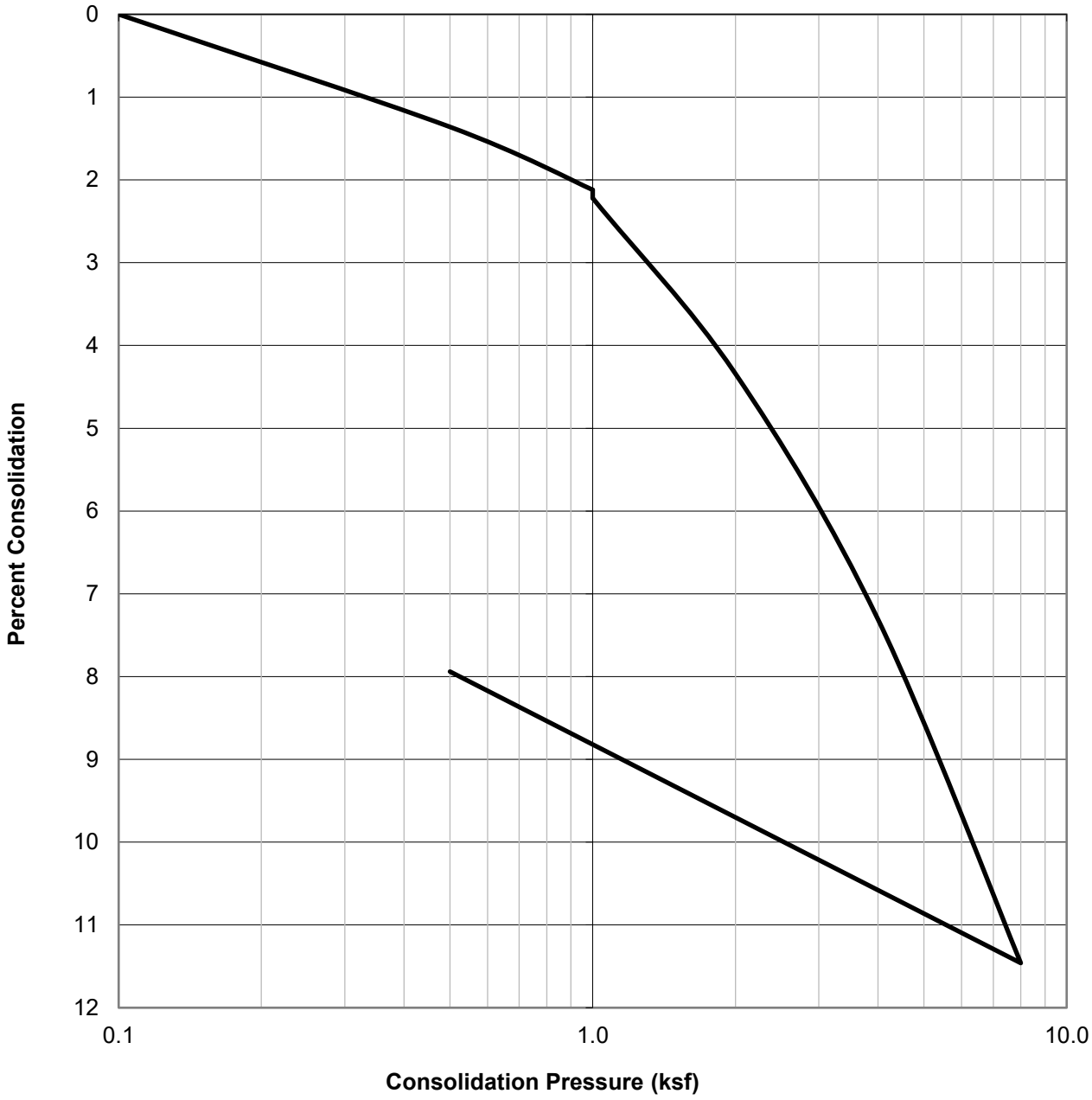
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Nov 22 Figure B-19

WATER ADDED AT 1.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B4@5	Silty SAND (SM), dark olive gray	81.1	38.3	36.9

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

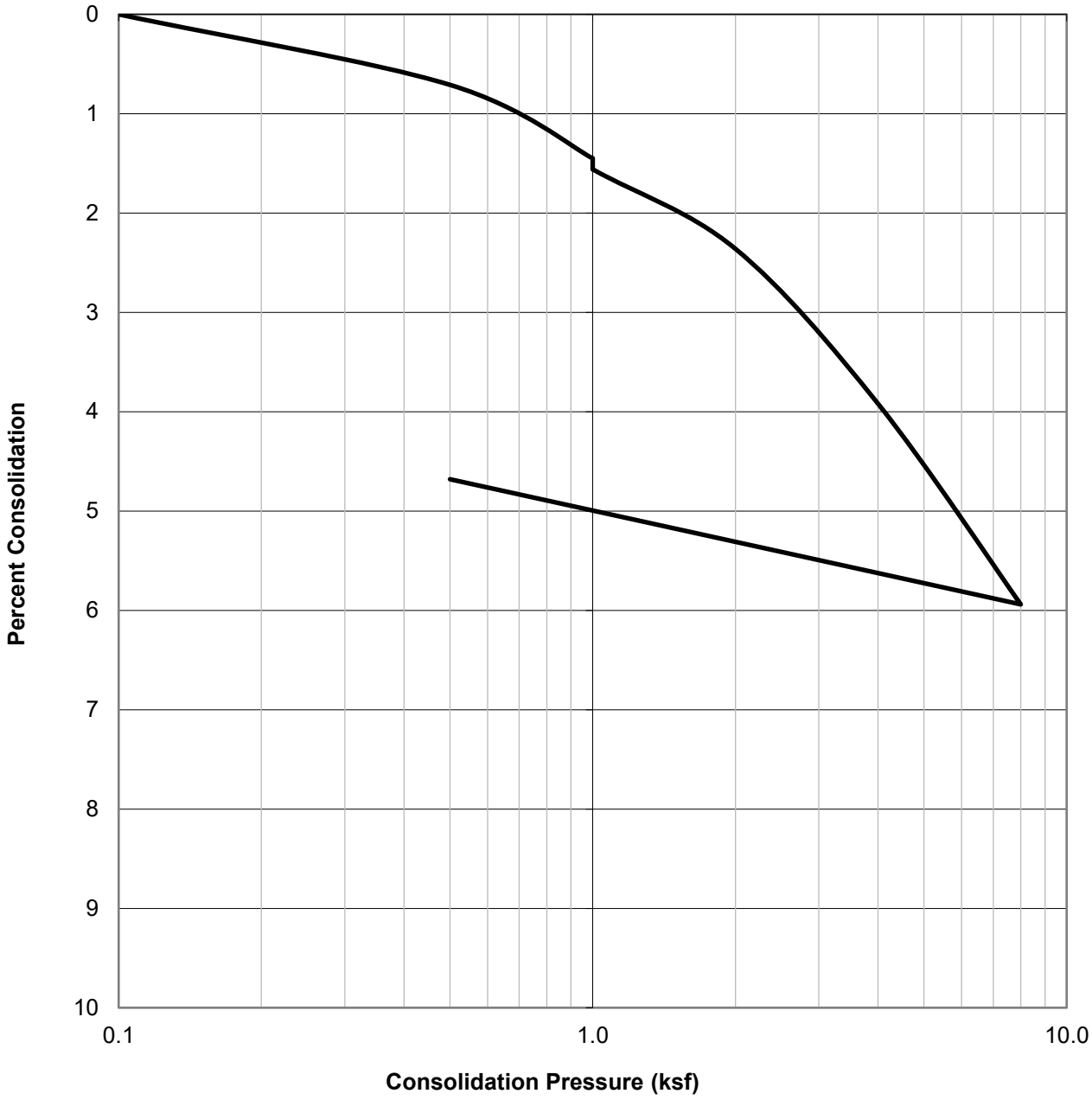
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Nov 22 Figure B-20

WATER ADDED AT 1.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B4@7.5	Silty SAND (SM), olive brown	102.9	19.1	21.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

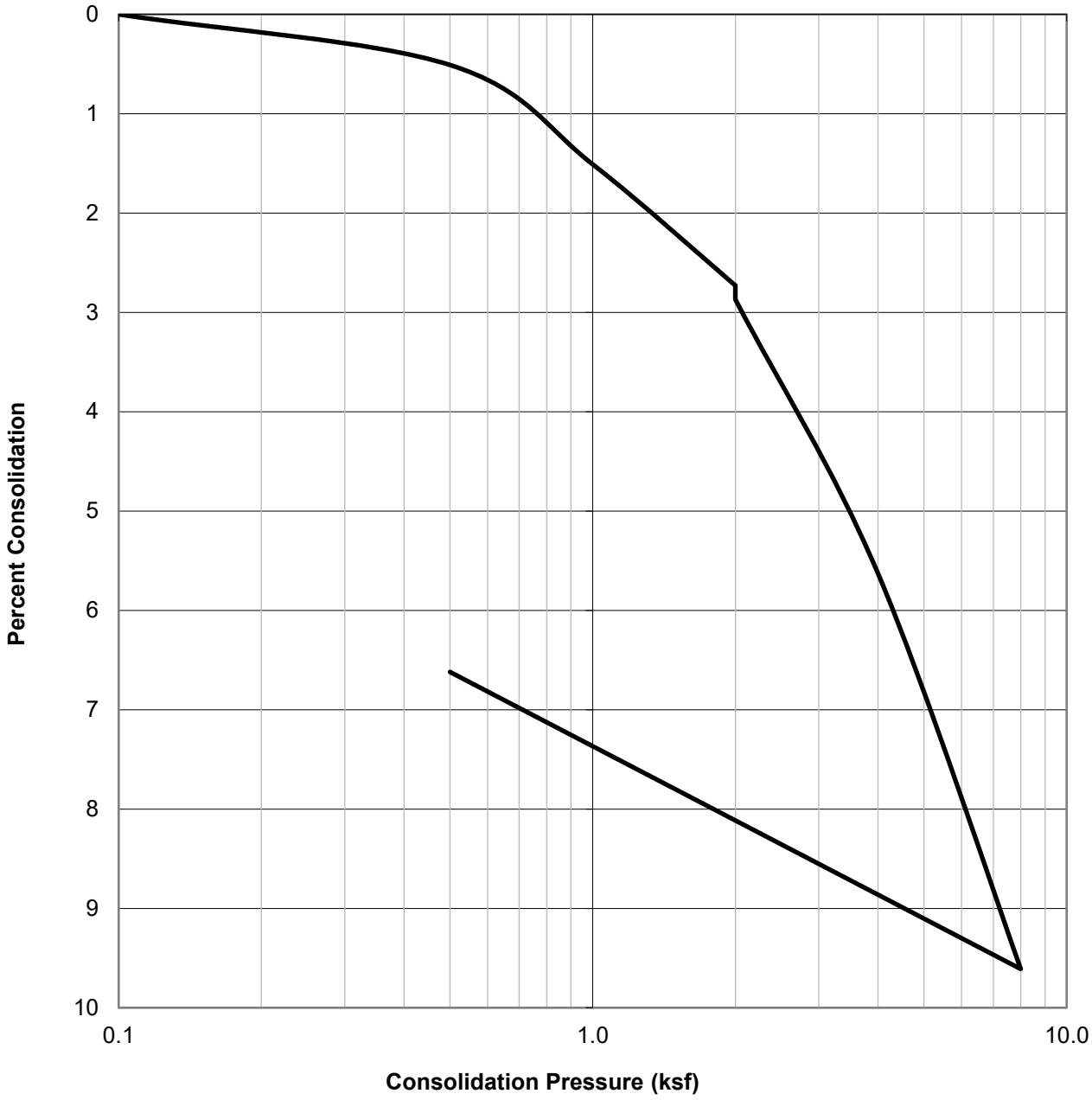
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Nov 22 Figure B-21

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B4@10	CLAY (CL), olive brown	90.5	31.6	29.9

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

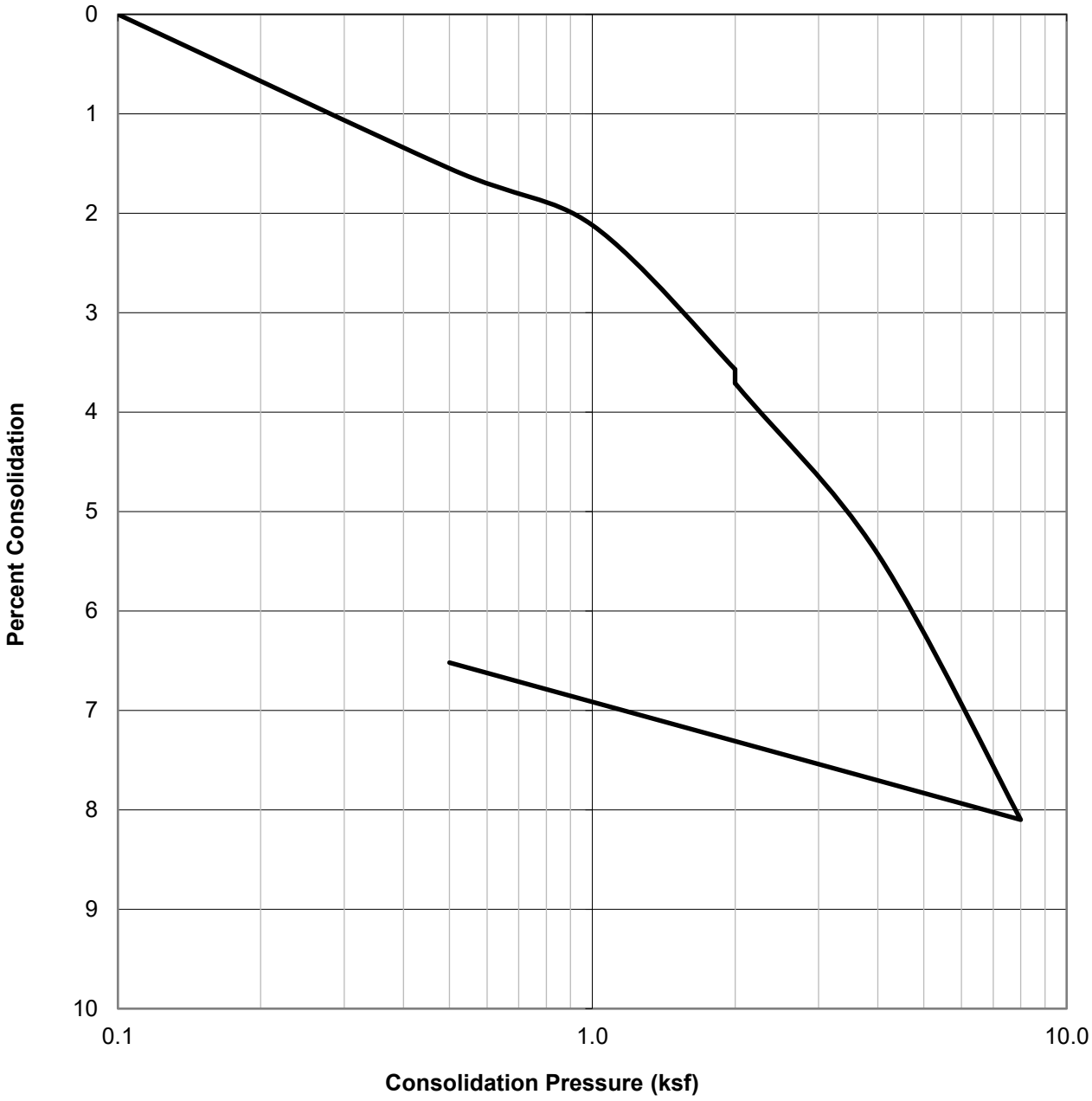
Checked by:

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Nov 22 Figure B-22

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B4@20	Silty SAND (SM), dark olive gray	103.6	21.5	20.6

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

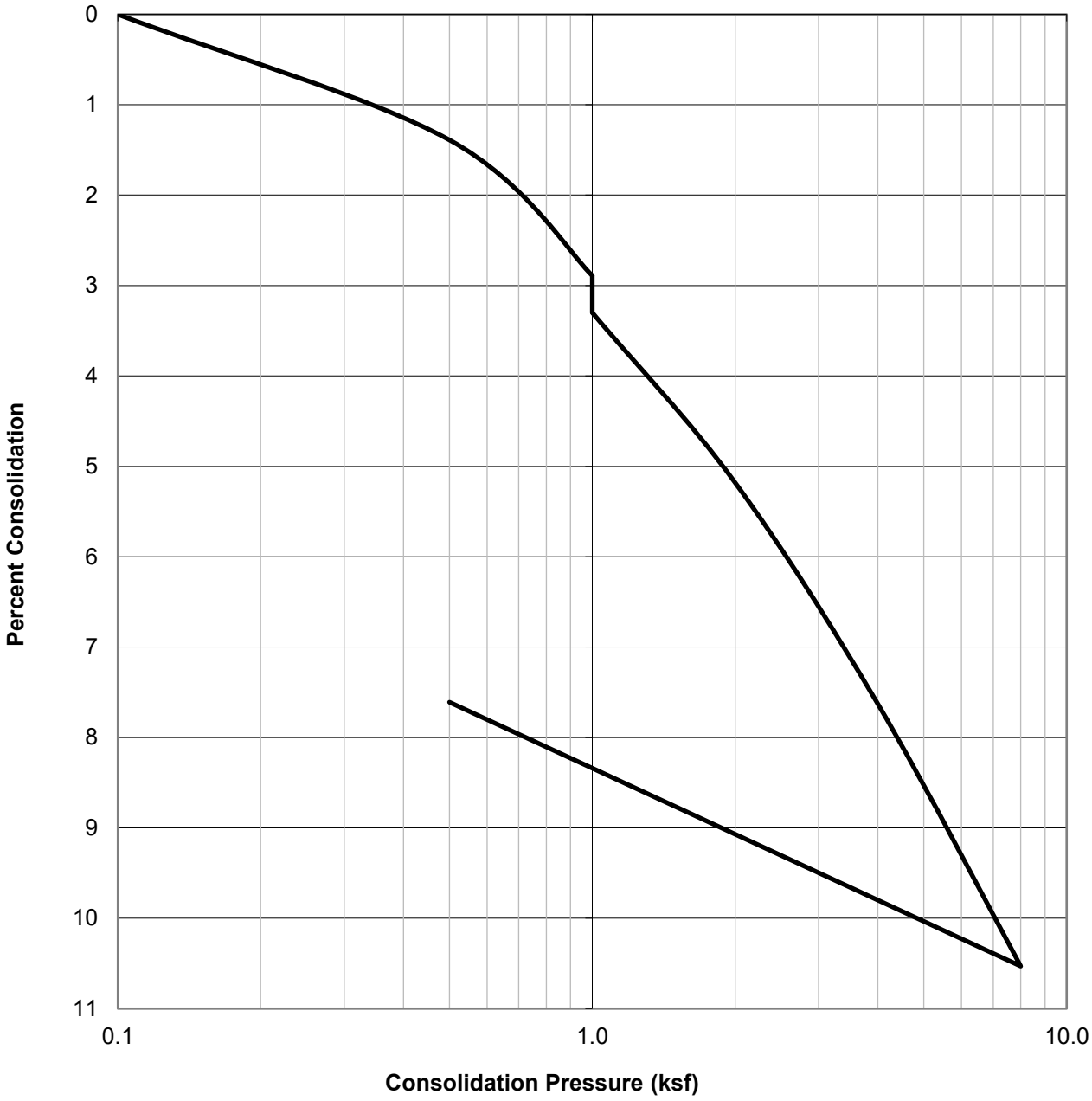
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Nov 22 Figure B-23

WATER ADDED AT 1.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B5@5	Silty SAND (SM), olive brown	79.9	24.1	37.4

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by:

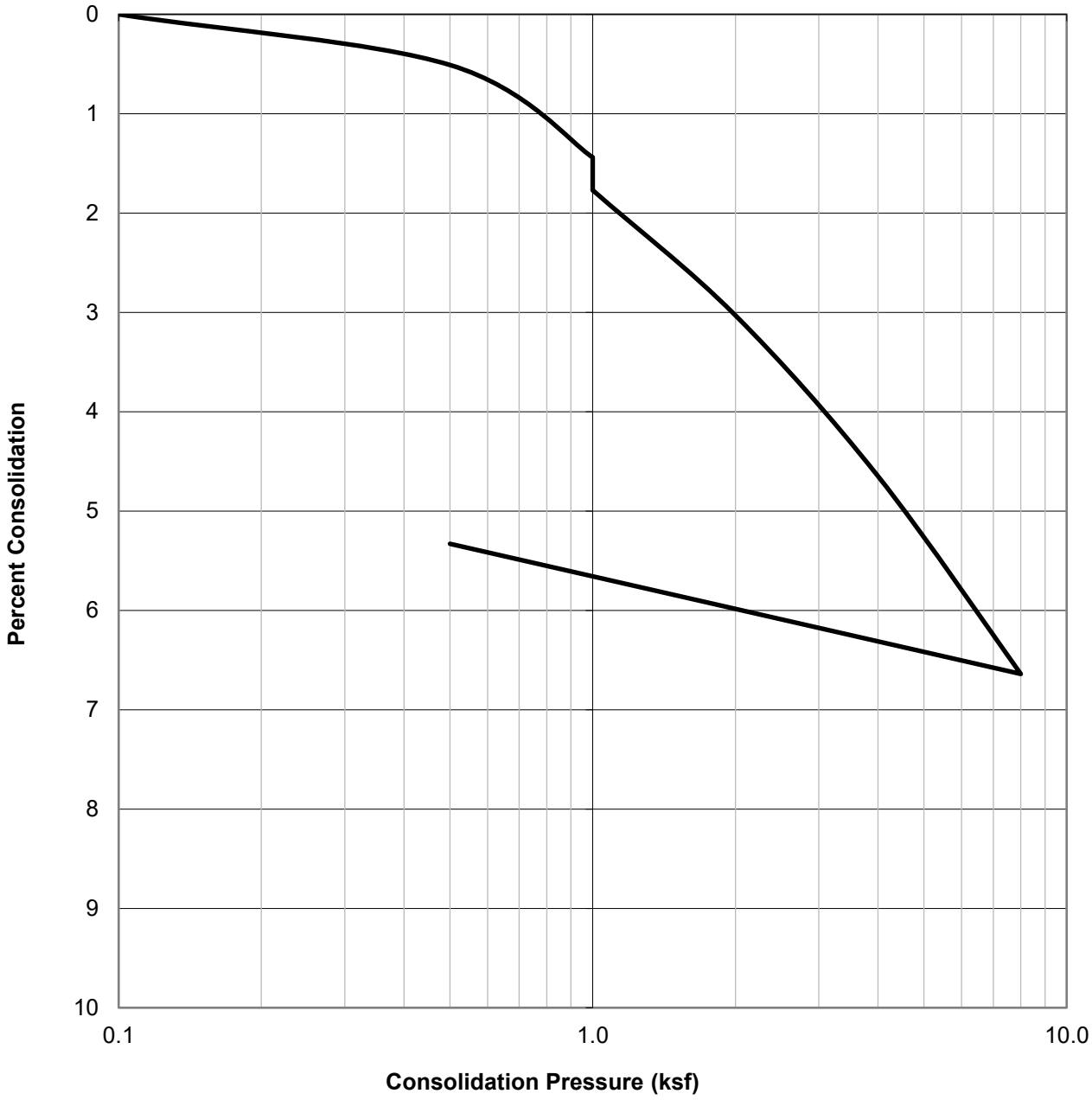
Project No.: T2998-22-01

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Nov 22

Figure B-24

WATER ADDED AT 1.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B5@7.5	Silty SAND (SM), dark brown	101.4	19.1	20.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

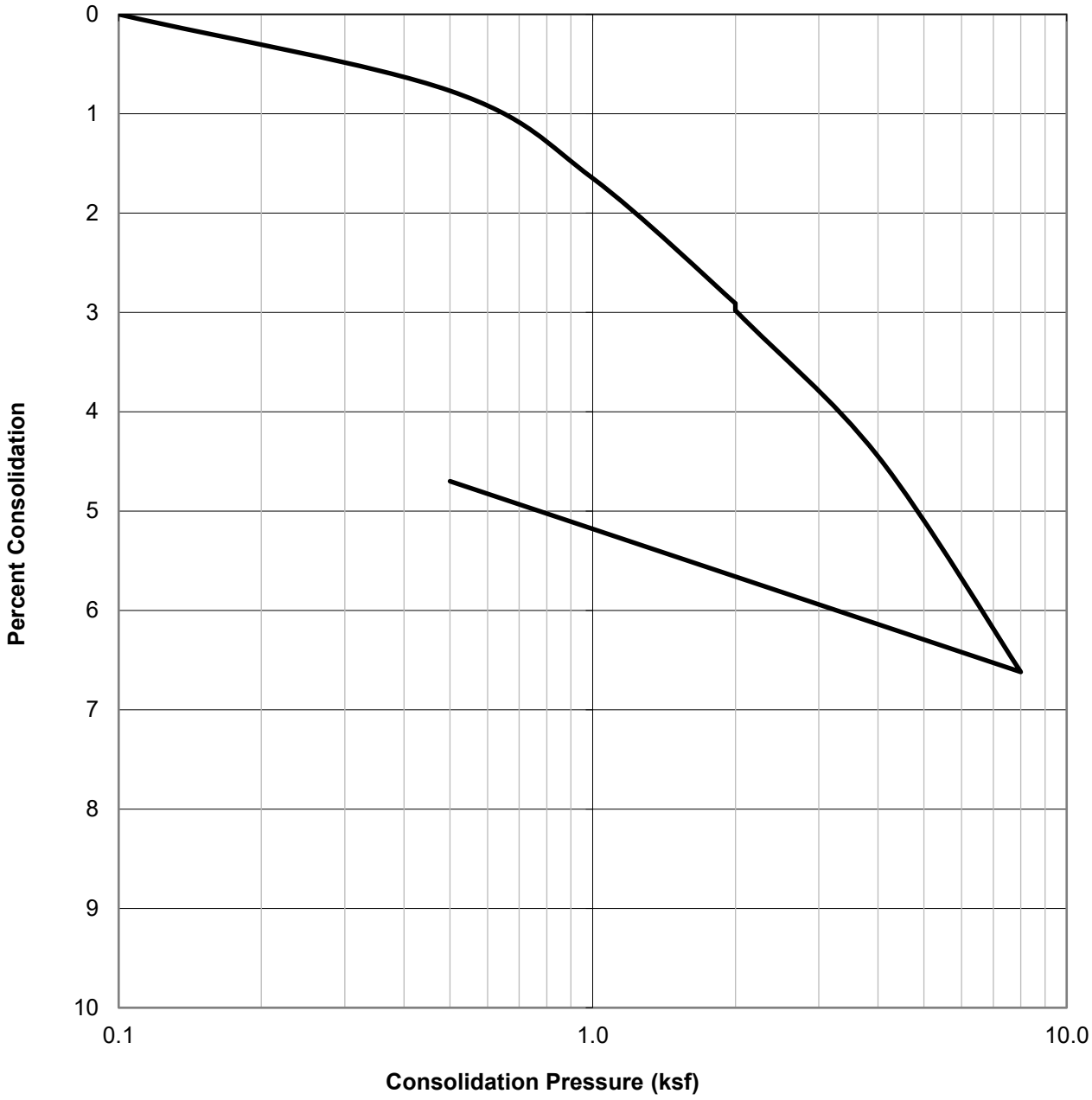
Checked by:

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Nov 22 Figure B-25

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B5@10	Clayey SAND (SC), dark olive brown	92.1	22.3	27.5

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

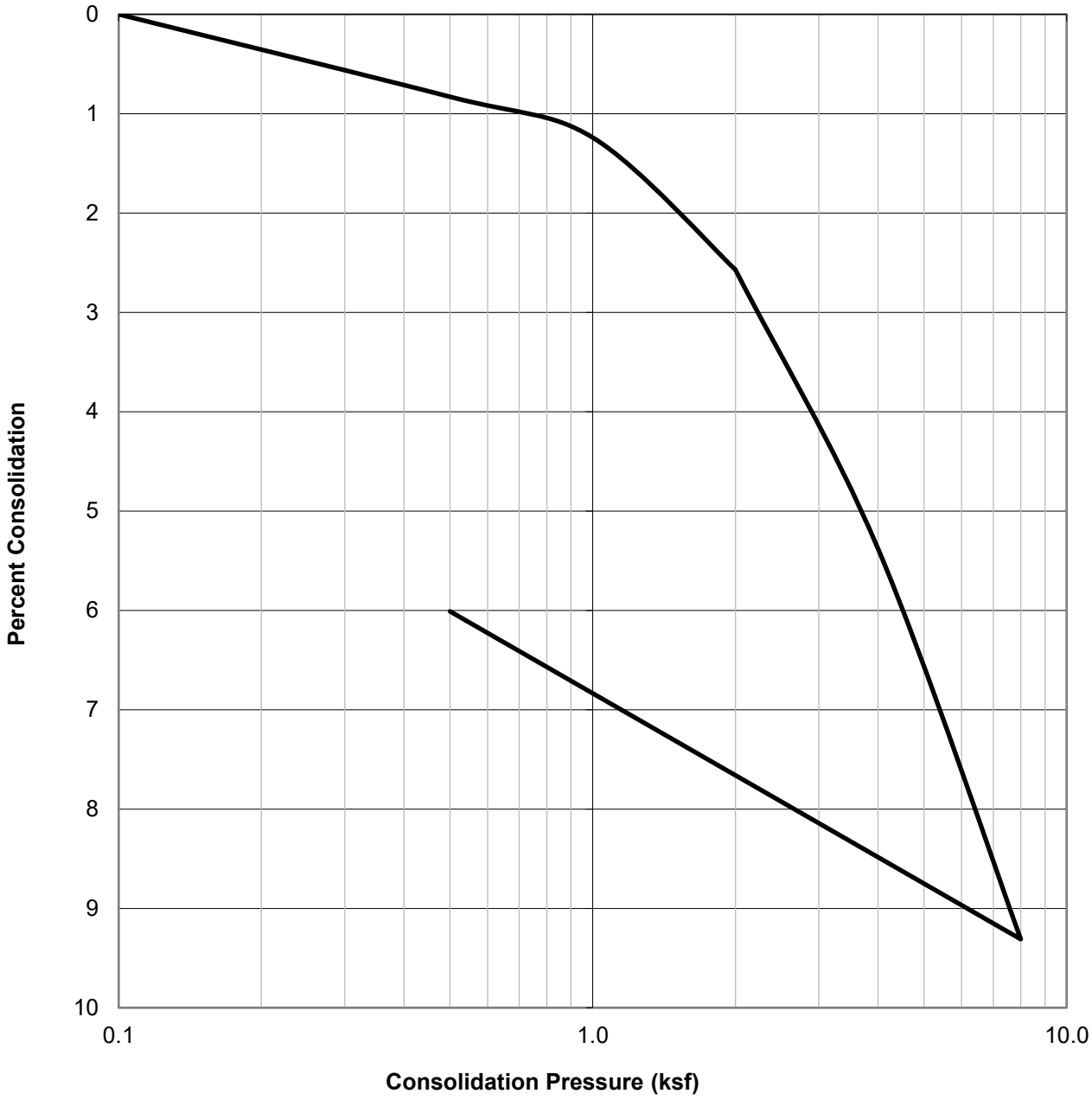
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Project No.: T2998-22-01

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Nov 22 Figure B-26

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B5@15	Lean CLAY (CL), olive gray	83.9	37.1	35.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

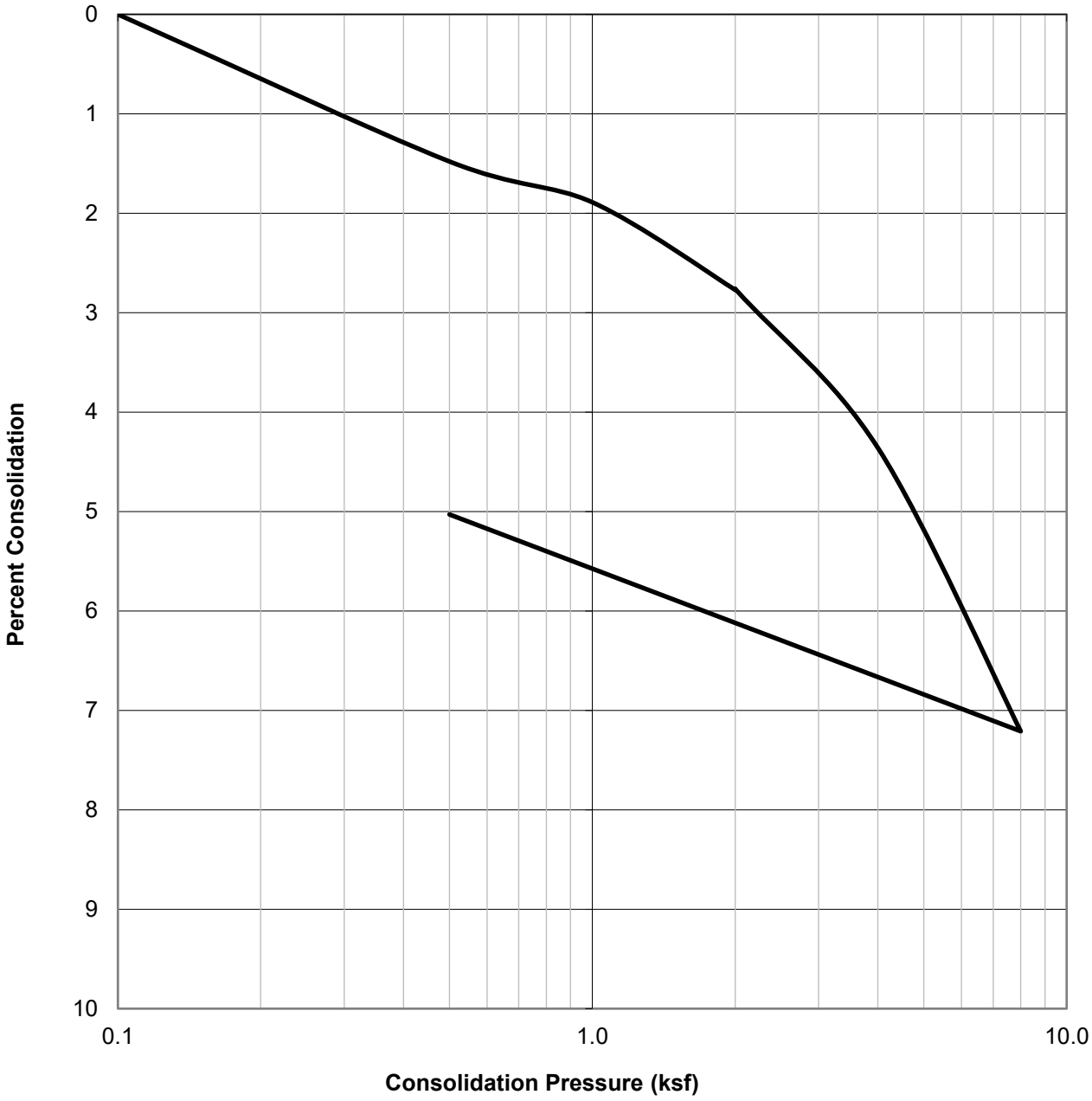
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Nov 22 Figure B-27

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B5@20	Lean CLAY (CL), dark brown	99.7	25.3	26.8

GEOCON

CONSOLIDATION TEST RESULTS

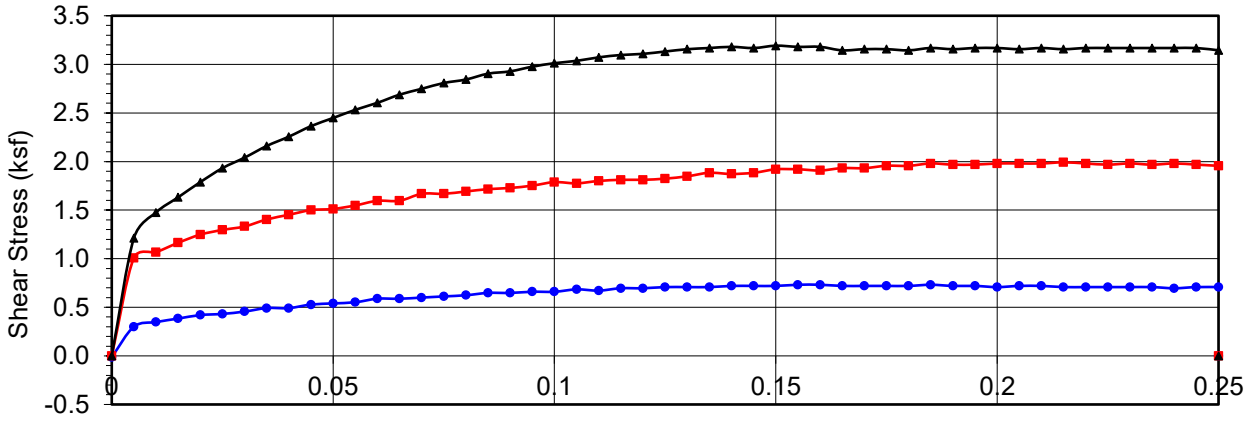
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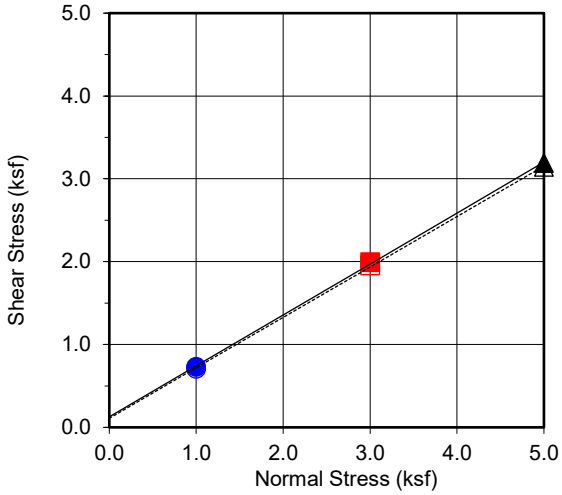
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Nov 22 Figure B-28





Boring No.	B2
Sample No.	B2@2.5
Depth (ft)	2.5
Sample Type:	Ring

Soil Identification:		
Silty SAND (SM), light brown		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	127	31.6
Ultimate	109	31.3

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.73	■ 1.99	▲ 3.19
Shear Stress @ End of Test (ksf)	○ 0.71	□ 1.96	△ 3.14
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	12.2	17.8	9.8
Initial Dry Density (pcf)	98.9	101.3	105.6
Initial Degree of Saturation (%)	46.8	72.2	44.5
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	24.2	14.2	21.9

GEOCON

DIRECT SHEAR TEST RESULTS

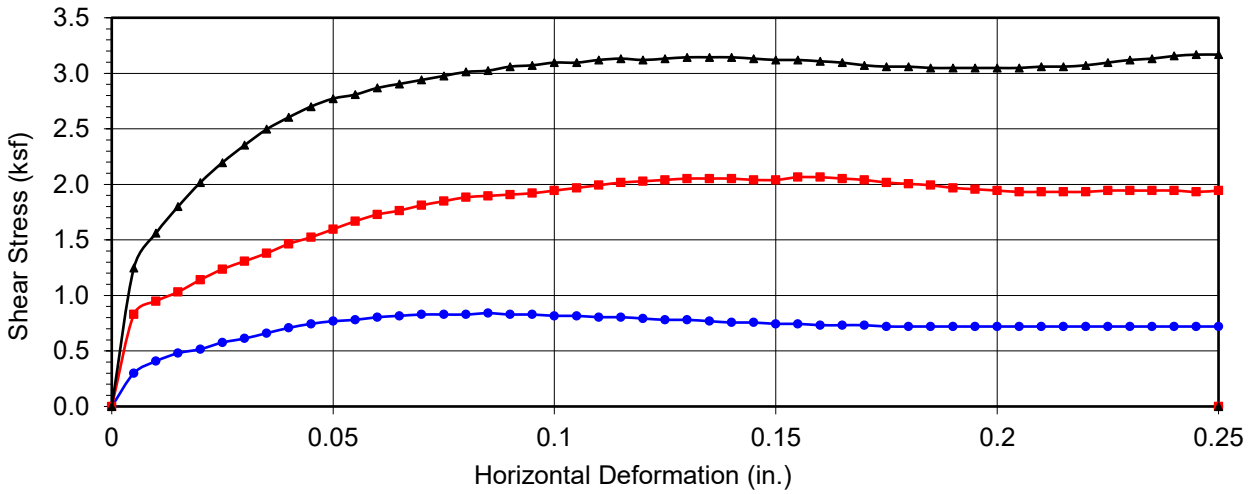
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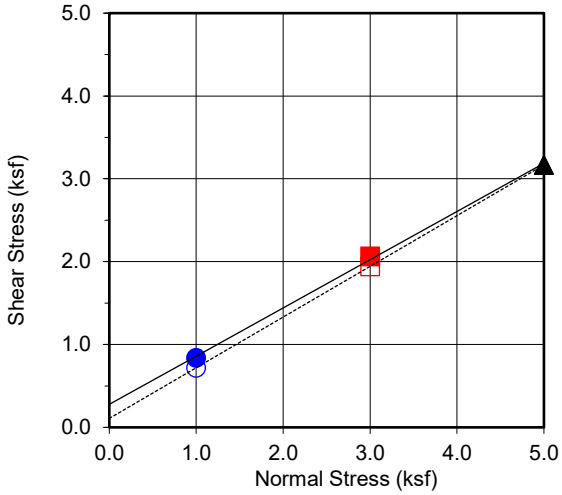
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Nov 22 Figure B-29





Boring No.	B2
Sample No.	B2@2-7
Depth (ft)	**2-7**
Sample Type:	Bulk

Soil Identification:		
Silty SAND (SM), olive gray		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	278	30.2
Ultimate	108	31.5

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.84	■ 2.06	▲ 3.17
Shear Stress @ End of Test (ksf)	○ 0.72	□ 1.94	△ 3.17
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	10.1	10.1	10.1
Initial Dry Density (pcf)	110.1	110.1	110.1
Initial Degree of Saturation (%)	51.3	51.6	51.6
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	17.1	15.3	16.0

GEOCON

DIRECT SHEAR TEST RESULTS

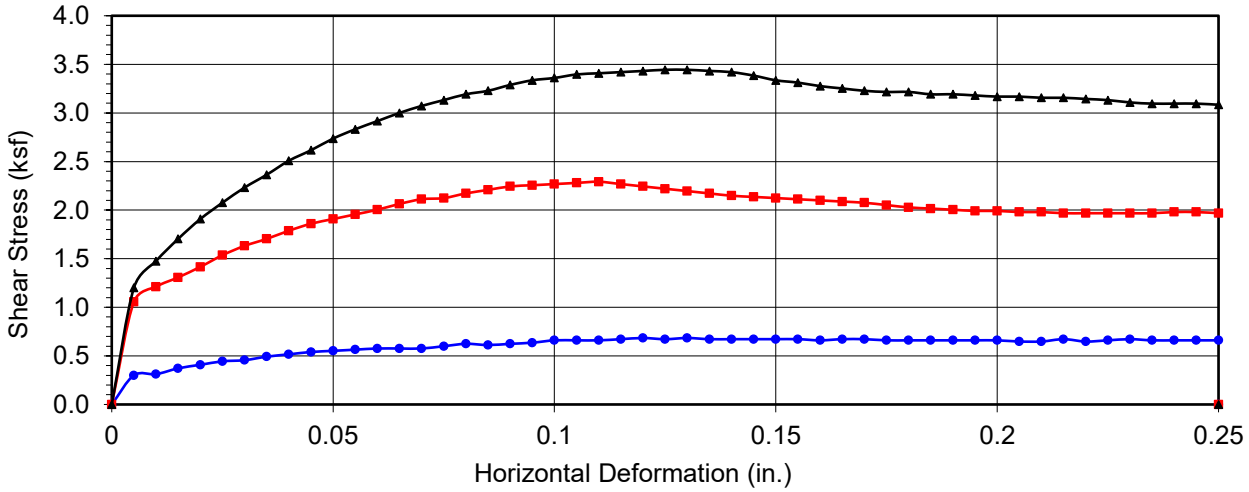
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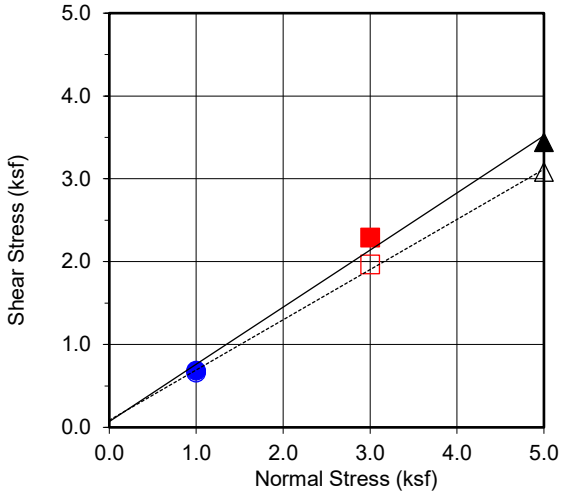
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Nov 22 Figure B-30





Boring No.	B3
Sample No.	B3@2.5
Depth (ft)	2.5
Sample Type:	ring

Soil Identification:
Silty SAND (SM), brown

Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	70	34.6
Ultimate	86	31.2

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.68	■ 2.29	▲ 3.44
Shear Stress @ End of Test (ksf)	○ 0.66	□ 1.97	△ 3.08
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	14.9	17.3	15.0
Initial Dry Density (pcf)	97.8	108.0	104.7
Initial Degree of Saturation (%)	55.8	83.1	66.2
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	21.8	19.6	16.8

GEOCON

DIRECT SHEAR TEST RESULTS

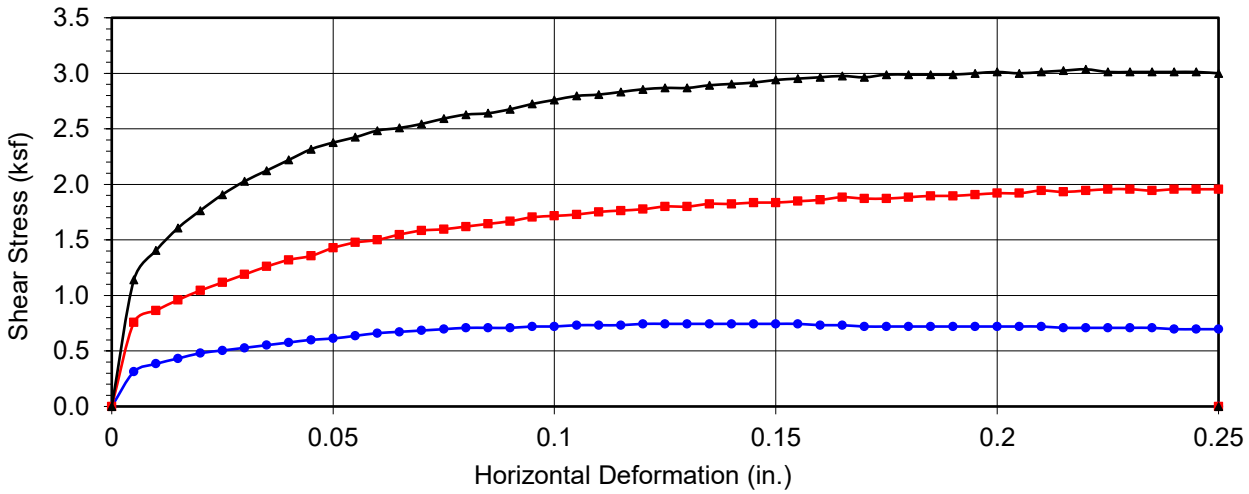
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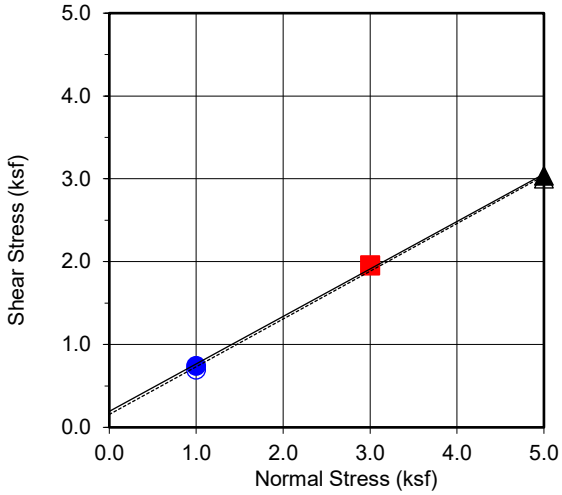
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Nov 22 Figure B-31





Boring No.	B4
Sample No.	B4@2-7
Depth (ft)	**2-7**
Sample Type:	Bulk

Soil Identification:		
Silty SAND (SM), dark brown		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	193	29.8
Ultimate	156	29.9

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.74	■ 1.96	▲ 3.04
Shear Stress @ End of Test (ksf)	○ 0.70	□ 1.96	△ 3.00
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	9.1	8.9	8.9
Initial Dry Density (pcf)	109.9	109.9	109.9
Initial Degree of Saturation (%)	45.9	45.1	45.0
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	16.4	15.2	14.9

GEOCON

DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

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Project No.: T2998-22-01

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Nov 22 Figure B-32

APPENDIX C

APPENDIX C

RECOMMENDED GRADING SPECIFICATIONS

FOR

SWC 7TH STREET AND CAWSTON AVENUE
SAN JACINTO, CALIFORNIA

PROJECT NO. T2998-22-01

RECOMMENDED GRADING SPECIFICATIONS

1. GENERAL

1.1 These Recommended Grading Specifications shall be used in conjunction with the Geotechnical Report for the project prepared by Geocon. The recommendations contained in the text of the Geotechnical Report are a part of the earthwork and grading specifications and shall supersede the provisions contained hereinafter in the case of conflict.

1.2 Prior to the commencement of grading, a geotechnical consultant (Consultant) shall be employed for the purpose of observing earthwork procedures and testing the fills for substantial conformance with the recommendations of the Geotechnical Report and these specifications. The Consultant should provide adequate testing and observation services so that they may assess whether, in their opinion, the work was performed in substantial conformance with these specifications. It shall be the responsibility of the Contractor to assist the Consultant and keep them apprised of work schedules and changes so that personnel may be scheduled accordingly.

1.3 It shall be the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the work in accordance with applicable grading codes or agency ordinances, these specifications and the approved grading plans. If, in the opinion of the Consultant, unsatisfactory conditions such as questionable soil materials, poor moisture condition, inadequate compaction, and/or adverse weather result in a quality of work not in conformance with these specifications, the Consultant will be empowered to reject the work and recommend to the Owner that grading be stopped until the unacceptable conditions are corrected.

2. DEFINITIONS

2.1 **Owner** shall refer to the owner of the property or the entity on whose behalf the grading work is being performed and who has contracted with the Contractor to have grading performed.

2.2 **Contractor** shall refer to the Contractor performing the site grading work.

2.3 **Civil Engineer** or **Engineer of Work** shall refer to the California licensed Civil Engineer or consulting firm responsible for preparation of the grading plans, surveying and verifying as-graded topography.

2.4 **Consultant** shall refer to the soil engineering and engineering geology consulting firm retained to provide geotechnical services for the project.

2.5 **Soil Engineer** shall refer to a California licensed Civil Engineer retained by the Owner, who is experienced in the practice of geotechnical engineering. The Soil Engineer shall be responsible for having qualified representatives on-site to observe and test the Contractor's work for conformance with these specifications.

2.6 **Engineering Geologist** shall refer to a California licensed Engineering Geologist retained by the Owner to provide geologic observations and recommendations during the site grading.

2.7 **Geotechnical Report** shall refer to a soil report (including all addenda) which may include a geologic reconnaissance or geologic investigation that was prepared specifically for the development of the project for which these Recommended Grading Specifications are intended to apply.

3. MATERIALS

3.1 Materials for compacted fill shall consist of any soil excavated from the cut areas or imported to the site that, in the opinion of the Consultant, is suitable for use in construction of fills. In general, fill materials can be classified as *soil* fills, *soil-rock* fills or *rock* fills, as defined below.

3.1.1 **Soil fills** are defined as fills containing no rocks or hard lumps greater than 12 inches in maximum dimension and containing at least 40 percent by weight of material smaller than ¾ inch in size.

3.1.2 **Soil-rock fills** are defined as fills containing no rocks or hard lumps larger than 4 feet in maximum dimension and containing a sufficient matrix of soil fill to allow for proper compaction of soil fill around the rock fragments or hard lumps as specified in Paragraph 6.2. **Oversize rock** is defined as material greater than 12 inches.

3.1.3 **Rock fills** are defined as fills containing no rocks or hard lumps larger than 3 feet in maximum dimension and containing little or no fines. Fines are defined as material smaller than ¾ inch in maximum dimension. The quantity of fines shall be less than approximately 20 percent of the rock fill quantity.

3.2 Material of a perishable, spongy, or otherwise unsuitable nature as determined by the Consultant shall not be used in fills.

3.3 Materials used for fill, either imported or on-site, shall not contain hazardous materials as defined by the California Code of Regulations, Title 22, Division 4, Chapter 30, Articles 9

and 10; 40CFR; and any other applicable local, state or federal laws. The Consultant shall not be responsible for the identification or analysis of the potential presence of hazardous materials. However, if observations, odors or soil discoloration cause Consultant to suspect the presence of hazardous materials, the Consultant may request from the Owner the termination of grading operations within the affected area. Prior to resuming grading operations, the Owner shall provide a written report to the Consultant indicating that the suspected materials are not hazardous as defined by applicable laws and regulations.

3.4 The outer 15 feet of *soil-rock* fill slopes, measured horizontally, should be composed of properly compacted *soil* fill materials approved by the Consultant. *Rock* fill may extend to the slope face, provided that the slope is not steeper than 2:1 (horizontal:vertical) and a soil layer no thicker than 12 inches is track-walked onto the face for landscaping purposes. This procedure may be utilized provided it is acceptable to the governing agency, Owner and Consultant.

3.5 Samples of soil materials to be used for fill should be tested in the laboratory by the Consultant to determine the maximum density, optimum moisture content, and, where appropriate, shear strength, expansion, and gradation characteristics of the soil.

3.6 During grading, soil or groundwater conditions other than those identified in the Geotechnical Report may be encountered by the Contractor. The Consultant shall be notified immediately to evaluate the significance of the unanticipated condition

4. CLEARING AND PREPARING AREAS TO BE FILLED

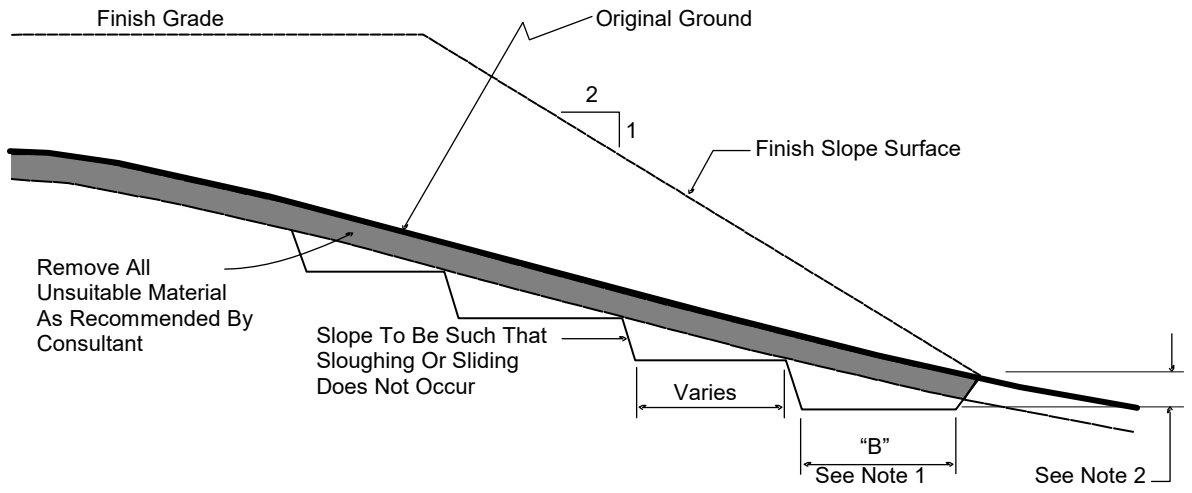
4.1 Areas to be excavated and filled shall be cleared and grubbed. Clearing shall consist of complete removal above the ground surface of trees, stumps, brush, vegetation, man-made structures, and similar debris. Grubbing shall consist of removal of stumps, roots, buried logs and other unsuitable material and shall be performed in areas to be graded. Roots and other projections exceeding 1½ inches in diameter shall be removed to a depth of 3 feet below the surface of the ground. Borrow areas shall be grubbed to the extent necessary to provide suitable fill materials.

4.2 Asphalt pavement material removed during clearing operations should be properly disposed at an approved off-site facility or in an acceptable area of the project evaluated by Geocon and the property owner. Concrete fragments that are free of reinforcing steel may be placed in fills, provided they are placed in accordance with Section 6.2 or 6.3 of this document.

4.3 After clearing and grubbing of organic matter and other unsuitable material, loose or porous soils shall be removed to the depth recommended in the Geotechnical Report. The depth of removal and compaction should be observed and approved by a representative of the Consultant. The exposed surface shall then be plowed or scarified to a minimum depth of 6 inches and until the surface is free from uneven features that would tend to prevent uniform compaction by the equipment to be used.

4.4 Where the slope ratio of the original ground is steeper than 5:1 (horizontal:vertical), or where recommended by the Consultant, the original ground should be benched in accordance with the following illustration.

TYPICAL BENCHING DETAIL



No Scale

DETAIL NOTES: (1) Key width "B" should be a minimum of 10 feet, or sufficiently wide to permit complete coverage with the compaction equipment used. The base of the key should be graded horizontal, or inclined slightly into the natural slope.

(2) The outside of the key should be below the topsoil or unsuitable surficial material and at least 2 feet into dense formational material. Where hard rock is exposed in the bottom of the key, the depth and configuration of the key may be modified as approved by the Consultant.

4.5 After areas to receive fill have been cleared and scarified, the surface should be moisture conditioned to achieve the proper moisture content, and compacted as recommended in Section 6 of these specifications.

5. COMPACTION EQUIPMENT

5.1 Compaction of *soil* or *soil-rock* fill shall be accomplished by sheepsfoot or segmented-steel wheeled rollers, vibratory rollers, multiple-wheel pneumatic-tired rollers, or other types of acceptable compaction equipment. Equipment shall be of such a design that it will be capable of compacting the *soil* or *soil-rock* fill to the specified relative compaction at the specified moisture content.

5.2 Compaction of *rock* fills shall be performed in accordance with Section 6.3.

6. PLACING, SPREADING AND COMPACTION OF FILL MATERIAL

6.1 *Soil* fill, as defined in Paragraph 3.1.1, shall be placed by the Contractor in accordance with the following recommendations:

6.1.1 *Soil* fill shall be placed by the Contractor in layers that, when compacted, should generally not exceed 8 inches. Each layer shall be spread evenly and shall be thoroughly mixed during spreading to obtain uniformity of material and moisture in each layer. The entire fill shall be constructed as a unit in nearly level lifts. Rock materials greater than 12 inches in maximum dimension shall be placed in accordance with Section 6.2 or 6.3 of these specifications.

6.1.2 In general, the *soil* fill shall be compacted at a moisture content at or above the optimum moisture content as determined by ASTM D 1557.

6.1.3 When the moisture content of *soil* fill is below that specified by the Consultant, water shall be added by the Contractor until the moisture content is in the range specified.

6.1.4 When the moisture content of the *soil* fill is above the range specified by the Consultant or too wet to achieve proper compaction, the *soil* fill shall be aerated by the Contractor by blading/mixing, or other satisfactory methods until the moisture content is within the range specified.

6.1.5 After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted by the Contractor to a relative compaction of at least 90 percent. Relative compaction is defined as the ratio (expressed in percent) of the in-place dry density of the compacted fill to the maximum laboratory dry density as determined in accordance with ASTM D 1557. Compaction shall be continuous over the entire area, and compaction equipment shall make sufficient passes so that the specified minimum relative compaction has been achieved throughout the entire fill.

6.1.6 Where practical, soils having an Expansion Index greater than 50 should be placed at least 3 feet below finish pad grade and should be compacted at a moisture content generally 2 to 4 percent greater than the optimum moisture content for the material.

6.1.7 Properly compacted *soil* fill shall extend to the design surface of fill slopes. To achieve proper compaction, it is recommended that fill slopes be over-built by at least 3 feet and then cut to the design grade. This procedure is considered preferable to track-walking of slopes, as described in the following paragraph.

6.1.8 As an alternative to over-building of slopes, slope faces may be back-rolled with a heavy-duty loaded sheepsfoot or vibratory roller at maximum 4-foot fill height intervals. Upon completion, slopes should then be track-walked with a D-8 dozer or similar equipment, such that a dozer track covers all slope surfaces at least twice.

6.2 *Soil-rock* fill, as defined in Paragraph 3.1.2, shall be placed by the Contractor in accordance with the following recommendations:

6.2.1 Rocks larger than 12 inches but less than 4 feet in maximum dimension may be incorporated into the compacted *soil* fill, but shall be limited to the area measured 15 feet minimum horizontally from the slope face and 5 feet below finish grade or 3 feet below the deepest utility, whichever is deeper.

6.2.2 Rocks or rock fragments up to 4 feet in maximum dimension may either be individually placed or placed in windrows. Under certain conditions, rocks or rock fragments up to 10 feet in maximum dimension may be placed using similar methods. The acceptability of placing rock materials greater than 4 feet in maximum dimension shall be evaluated during grading as specific cases arise and shall be approved by the Consultant prior to placement.

6.2.3 For individual placement, sufficient space shall be provided between rocks to allow for passage of compaction equipment.

6.2.4 For windrow placement, the rocks should be placed in trenches excavated in properly compacted *soil* fill. Trenches should be approximately 5 feet wide and 4 feet deep in maximum dimension. The voids around and beneath rocks should be filled with approved granular soil having a Sand Equivalent of 30 or greater and should be compacted by flooding. Windrows may also be placed utilizing an "open-face" method in lieu of the trench procedure, however, this method should first be approved by the Consultant.

6.2.5 Windrows should generally be parallel to each other and may be placed either parallel to or perpendicular to the face of the slope depending on the site geometry. The minimum horizontal spacing for windrows shall be 12 feet center-to-center with a 5-foot stagger or offset from lower courses to next overlying course. The minimum vertical spacing between windrow courses shall be 2 feet from the top of a lower windrow to the bottom of the next higher windrow.

6.2.6 Rock placement, fill placement and flooding of approved granular soil in the windrows should be continuously observed by the Consultant.

6.3 *Rock* fills, as defined in Section 3.1.3, shall be placed by the Contractor in accordance with the following recommendations:

6.3.1 The base of the *rock* fill shall be placed on a sloping surface (minimum slope of 2 percent). The surface shall slope toward suitable subdrainage outlet facilities. The *rock* fills shall be provided with subdrains during construction so that a hydrostatic pressure buildup does not develop. The subdrains shall be permanently connected to controlled drainage facilities to control post-construction infiltration of water.

6.3.2 *Rock* fills shall be placed in lifts not exceeding 3 feet. Placement shall be by rock trucks traversing previously placed lifts and dumping at the edge of the currently placed lift. Spreading of the *rock* fill shall be by dozer to facilitate *seating* of the rock. The *rock* fill shall be watered heavily during placement. Watering shall consist of water trucks traversing in front of the current rock lift face and spraying water continuously during rock placement. Compaction equipment with compactive energy comparable to or greater than that of a 20-ton steel vibratory roller or other compaction equipment providing suitable energy to achieve the required compaction or deflection as recommended in Paragraph 6.3.3 shall be utilized. The number of passes to be made should be determined as described in Paragraph 6.3.3. Once a *rock* fill lift has been covered with *soil* fill, no additional *rock* fill lifts will be permitted over the *soil* fill.

6.3.3 Plate bearing tests, in accordance with ASTM D 1196, may be performed in both the compacted *soil* fill and in the *rock* fill to aid in determining the required minimum number of passes of the compaction equipment. If performed, a minimum of three plate bearing tests should be performed in the properly compacted *soil* fill (minimum relative compaction of 90 percent). Plate bearing tests shall then be performed on areas of *rock* fill having two passes, four passes and six passes of the compaction equipment, respectively. The number of passes required for the *rock* fill shall be determined by comparing the results of the plate bearing tests for the *soil* fill and the *rock* fill and by evaluating the deflection

variation with number of passes. The required number of passes of the compaction equipment will be performed as necessary until the plate bearing deflections are equal to or less than that determined for the properly compacted *soil* fill. In no case will the required number of passes be less than two.

6.3.4 A representative of the Consultant should be present during *rock* fill operations to observe that the minimum number of "passes" have been obtained, that water is being properly applied and that specified procedures are being followed. The actual number of plate bearing tests will be determined by the Consultant during grading.

6.3.5 Test pits shall be excavated by the Contractor so that the Consultant can state that, in their opinion, sufficient water is present and that voids between large rocks are properly filled with smaller rock material. In-place density testing will not be required in the *rock* fills.

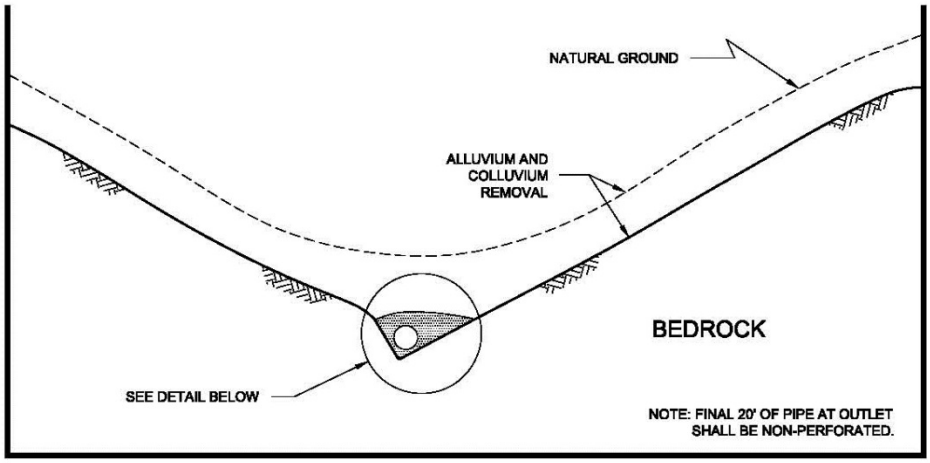
6.3.6 To reduce the potential for "piping" of fines into the *rock* fill from overlying *soil* fill material, a 2-foot layer of graded filter material shall be placed above the uppermost lift of *rock* fill. The need to place graded filter material below the *rock* should be determined by the Consultant prior to commencing grading. The gradation of the graded filter material will be determined at the time the *rock* fill is being excavated. Materials typical of the *rock* fill should be submitted to the Consultant in a timely manner, to allow design of the graded filter prior to the commencement of *rock* fill placement.

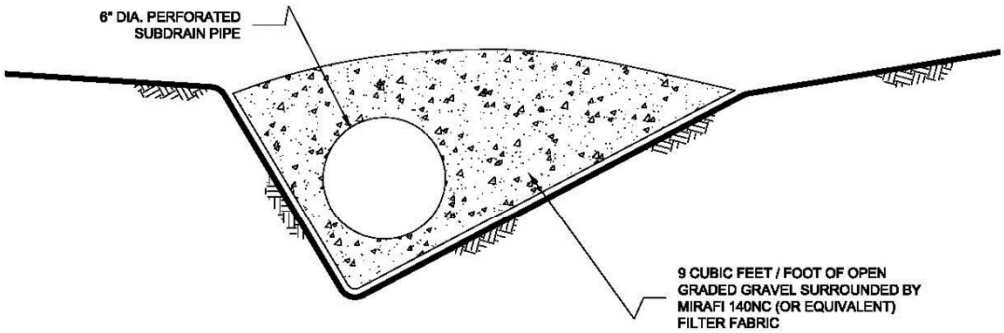
6.3.7 *Rock* fill placement should be continuously observed during placement by the Consultant.

7. SUBDRAINS

7.1 The geologic units on the site may have permeability characteristics and/or fracture systems that could be susceptible under certain conditions to seepage. The use of canyon subdrains may be necessary to mitigate the potential for adverse impacts associated with seepage conditions. Canyon subdrains with lengths in excess of 500 feet or extensions of existing offsite subdrains should use 8-inch-diameter pipes. Canyon subdrains less than 500 feet in length should use 6-inch-diameter pipes.

TYPICAL CANYON DRAIN DETAIL





NOTES:

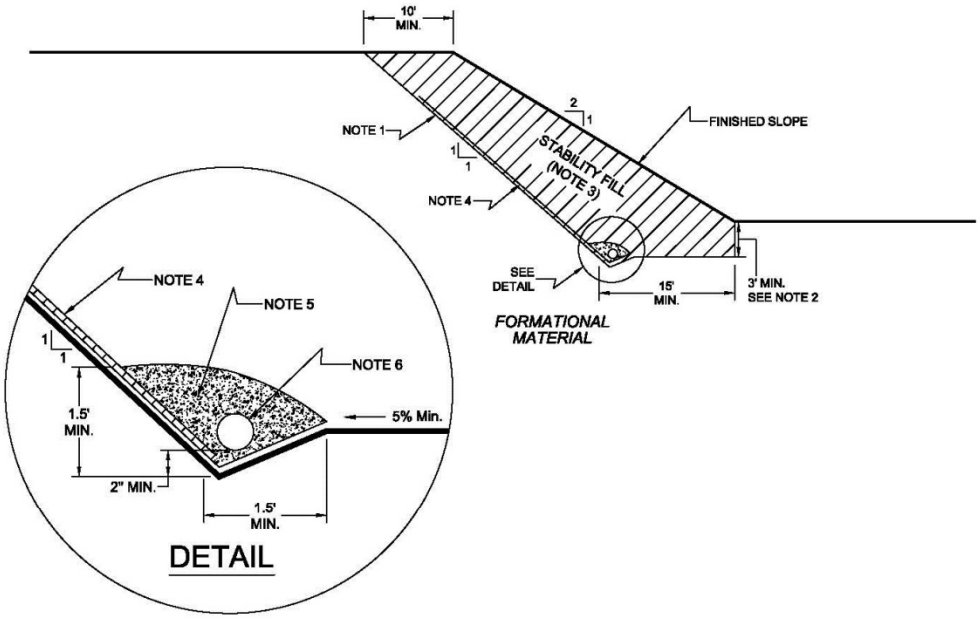
1.....6-INCH DIAMETER, SCHEDULE 80 PVC PERFORATED PIPE FOR FILLS
IN EXCESS OF 100-FEET IN DEPTH OR A PIPE LENGTH OF LONGER THAN 500 FEET.

2.....6-INCH DIAMETER, SCHEDULE 40 PVC PERFORATED PIPE FOR FILLS
LESS THAN 100-FEET IN DEPTH OR A PIPE LENGTH SHORTER THAN 500 FEET.

NO SCALE

7.2 Slope drains within stability fill keyways should use 4-inch-diameter (or lager) pipes.

TYPICAL STABILITY FILL DETAIL



NOTES:

1.....EXCAVATE BACKCUT AT 1:1 INCLINATION (UNLESS OTHERWISE NOTED).

2.....BASE OF STABILITY FILL TO BE 3 FEET INTO FORMATIONAL MATERIAL, SLOPING A MINIMUM 5% INTO SLOPE.

3.....STABILITY FILL TO BE COMPOSED OF PROPERLY COMPACTED GRANULAR SOIL.

4.....CHIMNEY DRAINS TO BE APPROVED PREFABRICATED CHIMNEY DRAIN PANELS (MIRADRAIN G200N OR EQUIVALENT) SPACED APPROXIMATELY 20 FEET CENTER TO CENTER AND 4 FEET WIDE. CLOSER SPACING MAY BE REQUIRED IF SEEPAGE IS ENCOUNTERED.

5.....FILTER MATERIAL TO BE 3/4-INCH, OPEN-GRADED CRUSHED ROCK ENCLOSED IN APPROVED FILTER FABRIC (MIRAFI 140NC).

6.....COLLECTOR PIPE TO BE 4-INCH MINIMUM DIAMETER, PERFORATED, THICK-WALLED PVC SCHEDULE 40 OR EQUIVALENT, AND SLOPED TO DRAIN AT 1 PERCENT MINIMUM TO APPROVED OUTLET.

NO SCALE

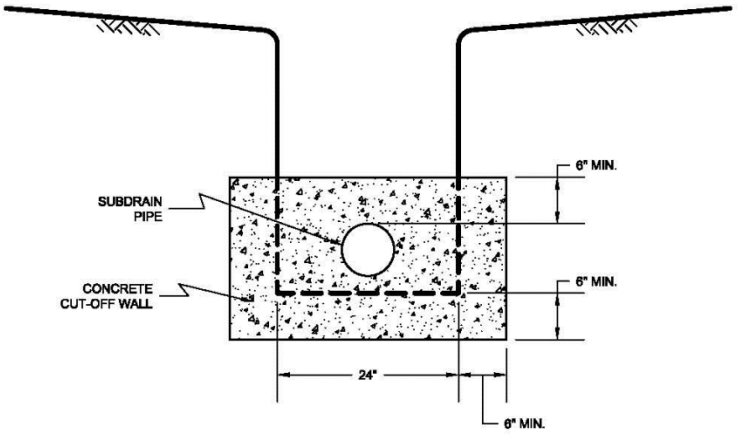
7.3 The actual subdrain locations will be evaluated in the field during the remedial grading operations. Additional drains may be necessary depending on the conditions observed and the requirements of the local regulatory agencies. Appropriate subdrain outlets should be evaluated prior to finalizing 40-scale grading plans.

7.4 *Rock* fill or *soil-rock* fill areas may require subdrains along their down-slope perimeters to mitigate the potential for buildup of water from construction or landscape irrigation. The subdrains should be at least 6-inch-diameter pipes encapsulated in gravel and filter fabric. *Rock* fill drains should be constructed using the same requirements as canyon subdrains.

7.5 Prior to outletting, the final 20-foot segment of a subdrain that will not be extended during future development should consist of non-perforated drainpipe. At the non-perforated/ perforated interface, a seepage cutoff wall should be constructed on the downslope side of the pipe.

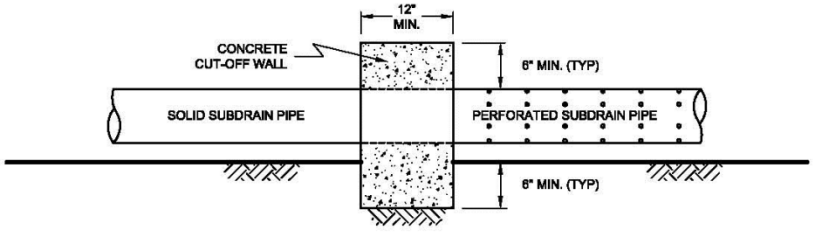
TYPICAL CUT OFF WALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW

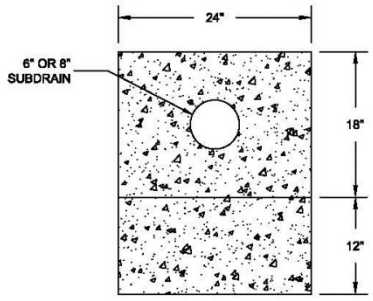


NO SCALE

7.6 Subdrains that discharge into a natural drainage course or open space area should be provided with a permanent headwall structure.

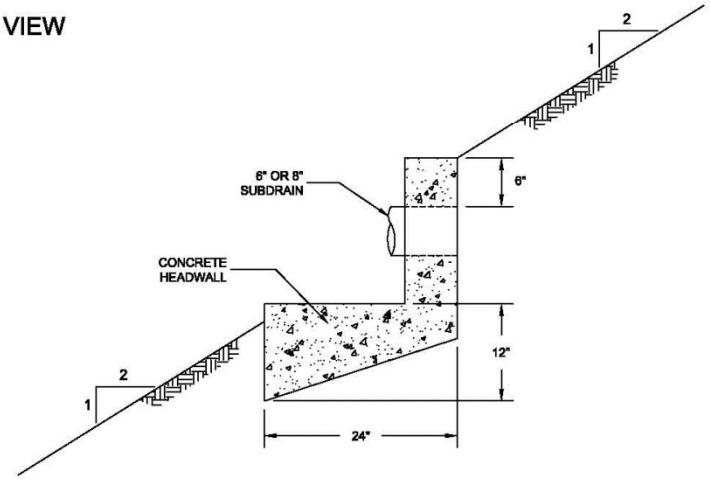
TYPICAL HEADWALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW



NOTE: HEADWALL SHOULD OUTLET AT TOE OF FILL SLOPE OR INTO CONTROLLED SURFACE DRAINAGE

NO SCALE

7.7 The final grading plans should show the location of the proposed subdrains. After completion of remedial excavations and subdrain installation, the project civil engineer should survey the drain locations and prepare an "as-built" map showing the drain locations. The final outlet and connection locations should be determined during grading operations. Subdrains that will be extended on adjacent projects after grading can be placed on formational material and a vertical riser should be placed at the end of the subdrain. The grading contractor should consider videoing the subdrains shortly after burial to check proper installation and functionality. The contractor is responsible for the performance of the drains.

8. OBSERVATION AND TESTING

8.1 The Consultant shall be the Owner's representative to observe and perform tests during clearing, grubbing, filling, and compaction operations. In general, no more than 2 feet in vertical elevation of *soil* or *soil-rock* fill should be placed without at least one field density test being performed within that interval. In addition, a minimum of one field density test should be performed for every 2,000 cubic yards of *soil* or *soil-rock* fill placed and compacted.

8.2 The Consultant should perform a sufficient distribution of field density tests of the compacted *soil* or *soil-rock* fill to provide a basis for expressing an opinion whether the fill material is compacted as specified. Density tests shall be performed in the compacted materials below any disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof is below that specified, the particular layer or areas represented by the test shall be reworked until the specified density has been achieved.

8.3 During placement of *rock* fill, the Consultant should observe that the minimum number of passes have been obtained per the criteria discussed in Section 6.3.3. The Consultant should request the excavation of observation pits and may perform plate bearing tests on the placed *rock* fills. The observation pits will be excavated to provide a basis for expressing an opinion as to whether the *rock* fill is properly seated and sufficient moisture has been applied to the material. When observations indicate that a layer of *rock* fill or any portion thereof is below that specified, the affected layer or area shall be reworked until the *rock* fill has been adequately seated and sufficient moisture applied.

8.4 A settlement monitoring program designed by the Consultant may be conducted in areas of *rock* fill placement. The specific design of the monitoring program shall be as recommended in the Conclusions and Recommendations section of the project Geotechnical Report or in the final report of testing and observation services performed during grading.

8.5 We should observe the placement of subdrains, to check that the drainage devices have been placed and constructed in substantial conformance with project specifications.

8.6 Testing procedures shall conform to the following Standards as appropriate:

8.6.1 Soil and Soil-Rock Fills:

8.6.1.1 Field Density Test, ASTM D 1556, *Density of Soil In-Place By the Sand-Cone Method.*

8.6.1.2 Field Density Test, Nuclear Method, ASTM D 6938, *Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth).*

8.6.1.3 Laboratory Compaction Test, ASTM D 1557, *Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Pound Hammer and 18-Inch Drop*.

8.6.1.4. Expansion Index Test, ASTM D 4829, *Expansion Index Test*.

9. PROTECTION OF WORK

9.1 During construction, the Contractor shall properly grade all excavated surfaces to provide positive drainage and prevent ponding of water. Drainage of surface water shall be controlled to avoid damage to adjoining properties or to finished work on the site. The Contractor shall take remedial measures to prevent erosion of freshly graded areas until such time as permanent drainage and erosion control features have been installed. Areas subjected to erosion or sedimentation shall be properly prepared in accordance with the Specifications prior to placing additional fill or structures.

9.2 After completion of grading as observed and tested by the Consultant, no further excavation or filling shall be conducted except in conjunction with the services of the Consultant.

10. CERTIFICATIONS AND FINAL REPORTS

10.1 Upon completion of the work, Contractor shall furnish Owner a certification by the Civil Engineer stating that the lots and/or building pads are graded to within 0.1 foot vertically of elevations shown on the grading plan and that all tops and toes of slopes are within 0.5 foot horizontally of the positions shown on the grading plans. After installation of a section of subdrain, the project Civil Engineer should survey its location and prepare an *as-built* plan of the subdrain location. The project Civil Engineer should verify the proper outlet for the subdrains and the Contractor should ensure that the drain system is free of obstructions.

10.2 The Owner is responsible for furnishing a final as-graded soil and geologic report satisfactory to the appropriate governing or accepting agencies. The as-graded report should be prepared and signed by a California licensed Civil Engineer experienced in geotechnical engineering and by a California Certified Engineering Geologist, indicating that the geotechnical aspects of the grading were performed in substantial conformance with the Specifications or approved changes to the Specifications.

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

Not Available

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

Not Applicable

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name	BLAINE A WOMER CIVIL ENGINEERING	Date	9/26/2024
Designed by	BAW	Case No	TTM 39076
Company Project Number/Name	TENTATIVE TRACT 39076-CHACON FARMS		

BMP Identification

BMP NAME / ID: BIORETENTION BASIN NO. 1 (NORTH AREA)

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85} = 0.70 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
D\1	*336831*	*Roofs*	*1*	*0.89*	*300453.3*			
D\2	*260534*	*Concrete or Asphalt*	*1*	*0.89*	*232396.3*			
D\3	*135765*	*Concrete or Asphalt*	*1*	*0.89*	*121102.4*			
D\4	*495034*	*Ornamental Landscaping*	*0.1*	*0.11*	*54680.5*			

Bioretention Facility - Design Procedure	BMP ID	Legend:	Required Entries	
	BRB NO. 1		Calculated Cells	

Company Name:	WOMER ENGINEERING	Date:	9/26/2024
Designed by:	BAW	County/City Case No.:	TTM 39076

Design Volume

Enter the area tributary to this feature	A_T=	28.2	acres
Enter V_{BMP} determined from Section 2.1 of this Handbook	V_{BMP}=	41,337	ft^3

Type of Bioretention Facility Design

(●) Side slopes required (parallel to parking spaces or adjacent to walkways)

( ) No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer	d_S =	2.5	ft
Top Width of Bioretention Facility, excluding curb	w_T =	50.0	ft
Total Effective Depth, d_E $d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$	d_E =	1.64	ft
Minimum Surface Area, A_m $A_M\ (ft^2) = \frac{V_{BMP}\ (ft^3)}{d_E\ (ft)}$	A_M =	25,268	ft^2
Proposed Surface Area	A=	25,300	ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility	z =	4	:1
Diameter of Underdrain		6	inches
Longitudinal Slope of Site (3% maximum)		0	%
6" Check Dam Spacing		0	feet

Describe Vegetation: Natural Grasses

Notes: BASIN DEPTH=2.5', WIDTH=50', LENGTH=545'

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: BLAINE A WOMER CIVIL ENGINEERING
Date: 5/24/2024
Designed by: BAW
Case No: TTM 39076
Company Project Number/Name: TENTATIVE TRACT 39076-CHACON FARMS

BMP Identification

BMP NAME / ID: BIORETENTION BASIN NO. 2 (CENTER AREA)

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.70 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
D\5	*190300*	*Roofs*	*1*	*0.89*	*169747.6*			
D\6	*151067*	*Concrete or Asphalt*	*1*	*0.89*	*134751.8*			
D\7	*73905*	*Concrete or Asphalt*	*1*	*0.89*	*65923.3*			
D\8	*367017*	*Ornamental Landscaping*	*0.1*	*0.11*	*40540*			
	782289		*Total*		*410962.7*	*0.70*	*23972.8*	*24000*

Notes:

Bioretention Facility - Design Procedure	BMP ID BRB NO. 2	Legend:	Required Entries / Calculated Cells

Company Name: WOMER ENGINEERING Date: 9/24/2024

Designed by: BAW County/City Case No.: TTM 39076

Design Volume

Enter the area tributary to this feature — A_T= 17.9 acres

Enter V_{BMP} determined from Section 2.1 of this Handbook — V_{BMP}= 23,973 ft^3

Type of Bioretention Facility Design

(●) Side slopes required (parallel to parking spaces or adjacent to walkways)

( ) No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer — d_S = 2.5 ft

Top Width of Bioretention Facility, excluding curb — w_T = 50.0 ft

Total Effective Depth, d_E

$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$ — d_E = 1.64 ft

Minimum Surface Area, A_m

$$A_M\ (ft^2) = \frac{V_{BMP}\ (ft^3)}{d_E\ (ft)}$$

A_M = 14,654 ft^2

Proposed Surface Area — A= 14,700 ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility — z = 4 :1

Diameter of Underdrain — 6 inches

Longitudinal Slope of Site (3% maximum) — 0 %

6" Check Dam Spacing — 0 feet

Describe Vegetation: Natural Grasses

Notes: DEPTH=2.5', WIDTH=53', LENGTH=290'

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: BLAINE A WOMER CIVIL ENGINEERING
Date: 9/24/2024
Designed by: BAW
Case No: TTM 39076
Company Project Number/Name: TENTATIVE TRACT 39076-CHACON FARMS

BMP Identification

BMP NAME / ID: BIORETENTION BASIN NO 3 (SOUTH AREA)

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.70 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
D\9	*270226*	*Roofs*	*1*	*0.89*	*241041.6*			
D\10	*201412*	*Concrete or Asphalt*	*1*	*0.89*	*179659.5*			
D\11	*99625*	*Concrete or Asphalt*	*1*	*0.89*	*88865.5*			
D\12	*440645*	*Ornamental Landscaping*	*0.1*	*0.11*	*48672.8*			

Bioretention Facility - Design Procedure	BMP ID: BRB NO 3	Legend:	Required Entries / Calculated Cells

Company Name: WOMER ENGINEERING — Date: 9/24/2024

Designed by: BAW — County/City Case No.: TTM 39076

Design Volume

Enter the area tributary to this feature — A_T = 23.2 acres

Enter V_{BMP} determined from Section 2.1 of this Handbook — V_{BMP} = 32,564 ft^3

Type of Bioretention Facility Design

(●) Side slopes required (parallel to parking spaces or adjacent to walkways)

( ) No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer — d_S = 2.5 ft

Top Width of Bioretention Facility, excluding curb — w_T = 50.0 ft

Total Effective Depth, d_E

$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$ — d_E = 1.64 ft

Minimum Surface Area, A_m

$$A_M\ (ft^2) = \frac{V_{BMP}\ (ft^3)}{d_E\ (ft)}$$

A_M = 19,905 ft^2

Proposed Surface Area — A= 19,910 ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility — z = 4 :1

Diameter of Underdrain — 6 inches

Longitudinal Slope of Site (3% maximum) — 0 %

6" Check Dam Spacing — 0 feet

Describe Vegetation: Natural Grasses

Notes: DEPTH=2.5', AVE. WIDTH=85', LENGTH=260'

Appendix 7: Hydromodification

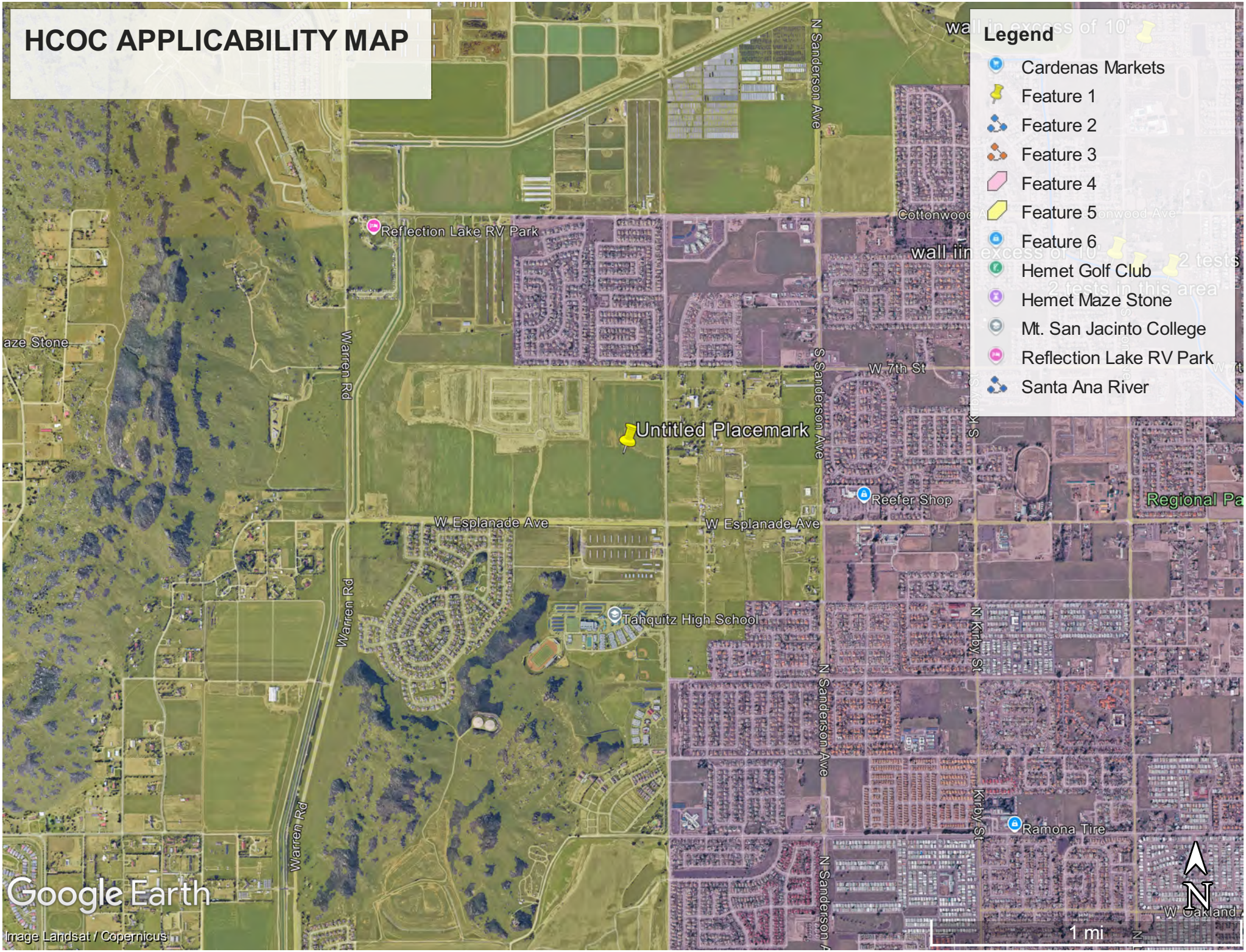
Supporting Detail Relating to Hydrologic Conditions of Concern

HCOC VOLUME SUMMARY

2-YEAR, 24 HOUR STORM RUNOFF VOLUME PER HYDROGRAPH = 267,057 CF

PROPOSED RETENTION BASIN CAPACITY = 273,199 CF

HCOC APPLICABILITY MAP



U n i t H y d r o g r a p h A n a l y s i s

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Study date 10/30/24 File: TTM390762YR24HRDEV242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4061

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

TENTATIVE TRACT 39076
HCOC HYDROLOGY
2 YEAR, 24 HOUR STORM
DEVELOPED CONDITION

Drainage Area = 75.70(Ac.) = 0.118 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 75.70(Ac.) = 0.118 Sq. Mi.
Length along longest watercourse = 2310.00(Ft.)
Length along longest watercourse measured to centroid = 1035.00(Ft.)
Length along longest watercourse = 0.438 Mi.
Length along longest watercourse measured to centroid = 0.196 Mi.
Difference in elevation = 5.50(Ft.)
Slope along watercourse = 12.5714 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.088 Hr.
Lag time = 5.25 Min.
25% of lag time = 1.31 Min.
40% of lag time = 2.10 Min.
Unit time = 15.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
75.70	1.80	136.26

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
75.70	4.50	340.65

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.800(In)

Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 1.800(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.800(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
75.700	63.00	0.550

Total Area Entered = 75.70(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
63.0	43.0	0.641	0.550	0.324	1.000	0.324
					Sum (F) =	0.324

Area averaged mean soil loss (F) (In/Hr) = 0.324
Minimum soil loss rate ((In/Hr)) = 0.162
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.460

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.250	285.675	55.160	42.083
2	0.500	571.350	37.931	28.938
3	0.750	857.025	6.908	5.270
			Sum = 100.000 Sum=	76.291

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.25	0.20	0.014	(0.571)	0.007	0.008
2	0.50	0.30	0.022	(0.565)	0.010	0.012
3	0.75	0.30	0.022	(0.558)	0.010	0.012
4	1.00	0.40	0.029	(0.551)	0.013	0.016
5	1.25	0.30	0.022	(0.545)	0.010	0.012
6	1.50	0.30	0.022	(0.539)	0.010	0.012
7	1.75	0.30	0.022	(0.532)	0.010	0.012
8	2.00	0.40	0.029	(0.526)	0.013	0.016
9	2.25	0.40	0.029	(0.519)	0.013	0.016
10	2.50	0.40	0.029	(0.513)	0.013	0.016
11	2.75	0.50	0.036	(0.507)	0.017	0.019
12	3.00	0.50	0.036	(0.501)	0.017	0.019
13	3.25	0.50	0.036	(0.494)	0.017	0.019
14	3.50	0.50	0.036	(0.488)	0.017	0.019
15	3.75	0.50	0.036	(0.482)	0.017	0.019
16	4.00	0.60	0.043	(0.476)	0.020	0.023
17	4.25	0.60	0.043	(0.470)	0.020	0.023
18	4.50	0.70	0.050	(0.464)	0.023	0.027
19	4.75	0.70	0.050	(0.458)	0.023	0.027

20	5.00	0.80	0.058	(0.452)	0.026	0.031
21	5.25	0.60	0.043	(0.446)	0.020	0.023
22	5.50	0.70	0.050	(0.440)	0.023	0.027
23	5.75	0.80	0.058	(0.435)	0.026	0.031
24	6.00	0.80	0.058	(0.429)	0.026	0.031
25	6.25	0.90	0.065	(0.423)	0.030	0.035
26	6.50	0.90	0.065	(0.418)	0.030	0.035
27	6.75	1.00	0.072	(0.412)	0.033	0.039
28	7.00	1.00	0.072	(0.406)	0.033	0.039
29	7.25	1.00	0.072	(0.401)	0.033	0.039
30	7.50	1.10	0.079	(0.395)	0.036	0.043
31	7.75	1.20	0.086	(0.390)	0.040	0.047
32	8.00	1.30	0.094	(0.385)	0.043	0.051
33	8.25	1.50	0.108	(0.379)	0.050	0.058
34	8.50	1.50	0.108	(0.374)	0.050	0.058
35	8.75	1.60	0.115	(0.369)	0.053	0.062
36	9.00	1.70	0.122	(0.364)	0.056	0.066
37	9.25	1.90	0.137	(0.358)	0.063	0.074
38	9.50	2.00	0.144	(0.353)	0.066	0.078
39	9.75	2.10	0.151	(0.348)	0.070	0.082
40	10.00	2.20	0.158	(0.343)	0.073	0.086
41	10.25	1.50	0.108	(0.338)	0.050	0.058
42	10.50	1.50	0.108	(0.333)	0.050	0.058
43	10.75	2.00	0.144	(0.329)	0.066	0.078
44	11.00	2.00	0.144	(0.324)	0.066	0.078
45	11.25	1.90	0.137	(0.319)	0.063	0.074
46	11.50	1.90	0.137	(0.314)	0.063	0.074
47	11.75	1.70	0.122	(0.310)	0.056	0.066
48	12.00	1.80	0.130	(0.305)	0.060	0.070
49	12.25	2.50	0.180	(0.300)	0.083	0.097
50	12.50	2.60	0.187	(0.296)	0.086	0.101
51	12.75	2.80	0.202	(0.292)	0.093	0.109
52	13.00	2.90	0.209	(0.287)	0.096	0.113
53	13.25	3.40	0.245	(0.283)	0.113	0.132
54	13.50	3.40	0.245	(0.279)	0.113	0.132
55	13.75	2.30	0.166	(0.274)	0.076	0.089
56	14.00	2.30	0.166	(0.270)	0.076	0.089
57	14.25	2.70	0.194	(0.266)	0.089	0.105
58	14.50	2.60	0.187	(0.262)	0.086	0.101
59	14.75	2.60	0.187	(0.258)	0.086	0.101
60	15.00	2.50	0.180	(0.254)	0.083	0.097
61	15.25	2.40	0.173	(0.250)	0.079	0.093
62	15.50	2.30	0.166	(0.246)	0.076	0.089
63	15.75	1.90	0.137	(0.242)	0.063	0.074
64	16.00	1.90	0.137	(0.239)	0.063	0.074
65	16.25	0.40	0.029	(0.235)	0.013	0.016
66	16.50	0.40	0.029	(0.232)	0.013	0.016
67	16.75	0.30	0.022	(0.228)	0.010	0.012
68	17.00	0.30	0.022	(0.225)	0.010	0.012
69	17.25	0.50	0.036	(0.221)	0.017	0.019
70	17.50	0.50	0.036	(0.218)	0.017	0.019
71	17.75	0.50	0.036	(0.215)	0.017	0.019
72	18.00	0.40	0.029	(0.211)	0.013	0.016
73	18.25	0.40	0.029	(0.208)	0.013	0.016
74	18.50	0.40	0.029	(0.205)	0.013	0.016
75	18.75	0.30	0.022	(0.202)	0.010	0.012
76	19.00	0.20	0.014	(0.199)	0.007	0.008
77	19.25	0.30	0.022	(0.197)	0.010	0.012
78	19.50	0.40	0.029	(0.194)	0.013	0.016
79	19.75	0.30	0.022	(0.191)	0.010	0.012
80	20.00	0.20	0.014	(0.189)	0.007	0.008

81	20.25	0.30	0.022	(0.186)	0.010	0.012
82	20.50	0.30	0.022	(0.184)	0.010	0.012
83	20.75	0.30	0.022	(0.181)	0.010	0.012
84	21.00	0.20	0.014	(0.179)	0.007	0.008
85	21.25	0.30	0.022	(0.177)	0.010	0.012
86	21.50	0.20	0.014	(0.175)	0.007	0.008
87	21.75	0.30	0.022	(0.173)	0.010	0.012
88	22.00	0.20	0.014	(0.171)	0.007	0.008
89	22.25	0.30	0.022	(0.170)	0.010	0.012
90	22.50	0.20	0.014	(0.168)	0.007	0.008
91	22.75	0.20	0.014	(0.167)	0.007	0.008
92	23.00	0.20	0.014	(0.165)	0.007	0.008
93	23.25	0.20	0.014	(0.164)	0.007	0.008
94	23.50	0.20	0.014	(0.163)	0.007	0.008
95	23.75	0.20	0.014	(0.162)	0.007	0.008
96	24.00	0.20	0.014	(0.162)	0.007	0.008

(Loss Rate Not Used)

Sum = 100.0 Sum = 3.9

Flood volume = Effective rainfall 0.97(In)
times area 75.7(Ac.)/[(In)/(Ft.)] = 6.1(Ac.Ft)
Total soil loss = 0.83(In)
Total soil loss = 5.223(Ac.Ft)
Total rainfall = 1.80(In)
Flood volume = 267057.4 Cubic Feet
Total soil loss = 227493.3 Cubic Feet

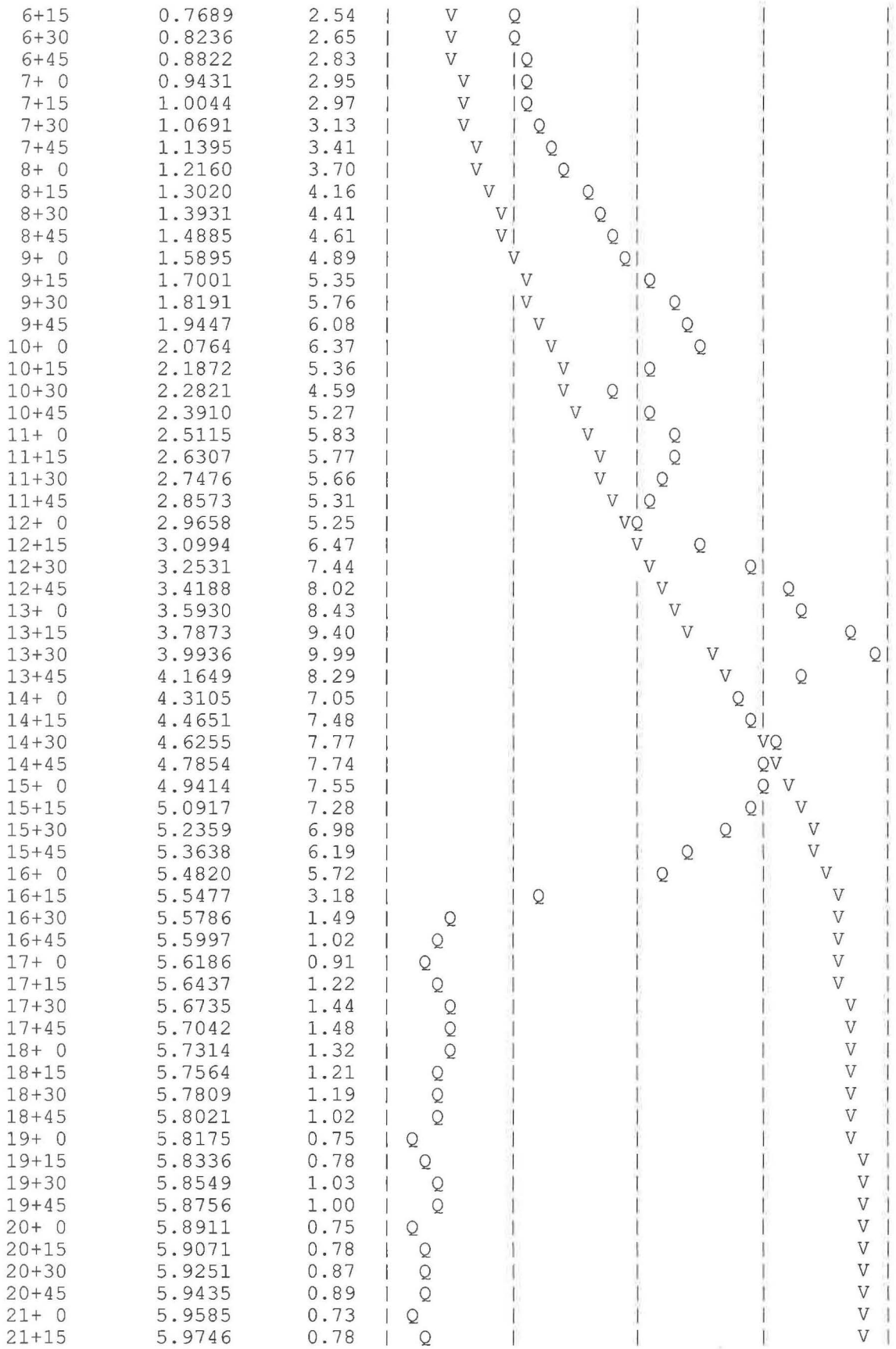
Peak flow rate of this hydrograph = 9.986(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 15 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+15	0.0068	0.33	VQ				
0+30	0.0216	0.72	V Q				
0+45	0.0395	0.87	V Q				
1+ 0	0.0613	1.05	V Q				
1+15	0.0820	1.00	V Q				
1+30	0.1008	0.91	V Q				
1+45	0.1192	0.89	V Q				
2+ 0	0.1410	1.05	V Q				
2+15	0.1651	1.17	V Q				
2+30	0.1896	1.19	V Q				
2+45	0.2175	1.35	V Q				
3+ 0	0.2478	1.46	V Q				
3+15	0.2784	1.48	V Q				
3+30	0.3091	1.48	V Q				
3+45	0.3397	1.48	V Q				
4+ 0	0.3738	1.65	V Q				
4+15	0.4101	1.76	V Q				
4+30	0.4503	1.94	V Q				
4+45	0.4928	2.06	V Q				
5+ 0	0.5391	2.24	V Q				
5+15	0.5809	2.03	V Q				
5+30	0.6219	1.99	V Q				
5+45	0.6678	2.22	V Q				
6+ 0	0.7164	2.35	V Q				



21+30	5.9891	0.71	Q				V
21+45	6.0052	0.78	Q				V
22+ 0	6.0198	0.71	Q				V
22+15	6.0359	0.78	Q				V
22+30	6.0505	0.71	Q				V
22+45	6.0631	0.61	Q				V
23+ 0	6.0754	0.59	Q				V
23+15	6.0877	0.59	Q				V
23+30	6.0999	0.59	Q				V
23+45	6.1122	0.59	Q				V
24+ 0	6.1244	0.59	Q				V
24+15	6.1299	0.27	Q				V
24+30	6.1308	0.04	Q				V

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

How to use this worksheet (also see instructions in Section G of the WQMP Template):

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your WQMP Exhibit.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in your WQMP. Use the format shown in Table G.1on page 23 of this WQMP Template. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	**... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE**		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on WQMP Drawings**	**3** **Permanent Controls—List in WQMP Table and Narrative**	**4** **Operational BMPs—Include in WQMP Table and Narrative**
☒ **A.** On-site storm drain inlets	☒ Locations of inlets.	☒ Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.	☒ Maintain and periodically repaint or replace inlet markings. ☒ Provide stormwater pollution prevention information to new site owners, lessees, or operators. ☐ See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com ☐ Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."
☐ **B.** Interior floor drains and elevator shaft sump pumps		☐ State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	☐ Inspect and maintain drains to prevent blockages and overflow.
☐ **C.** Interior parking garages		☐ State that parking garage floor drains will be plumbed to the sanitary sewer.	☐ Inspect and maintain drains to prevent blockages and overflow.

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
☐ **D1.** Need for future indoor & structural pest control		☐ Note building design features that discourage entry of pests.	☐ Provide Integrated Pest Management information to owners, lessees, and operators.
☒ **D2.** Landscape/ Outdoor Pesticide Use	☐ Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained. ☐ Show self-retaining landscape areas, if any. ☐ Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.)	State that final landscape plans will accomplish all of the following. ☐ Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. ☒ Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. ☐ Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. ☒ Consider using pest-resistant plants, especially adjacent to hardscape. To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	☐ Maintain landscaping using minimum or no pesticides. ☐ See applicable operational BMPs in "What you should know for.....Landscape and Gardening" at http://rcflood.org/stormwater/Error! Hyperlink reference not valid. ☐ Provide IPM information to new owners, lessees and operators.

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
❑ **E.** Pools, spas, ponds, decorative fountains, and other water features.	❑ Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)	If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	❑ See applicable operational BMPs in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/
❑ **F.** Food service	❑ For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment. ❑ On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	❑ Describe the location and features of the designated cleaning area. ❑ Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.	❑ See the brochure, "The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://rcflood.org/stormwater/ Provide this brochure to new site owners, lessees, and operators.
❑ **G.** Refuse areas	❑ Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas. ❑ If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area. ❑ Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	❑ State how site refuse will be handled and provide supporting detail to what is shown on plans. ❑ State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	❑ State how the following will be implemented: Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
❑ **H.** Industrial processes.	❑ Show process area.	❑ If industrial processes are to be located on site, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."	❑ See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com See the brochure "Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities" at http://rcflood.org/stormwater/

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
☐ I. Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)	☐ Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area. ☐ Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults. ☐ Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.	Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains. Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for: ▪ Hazardous Waste Generation ▪ Hazardous Materials Release Response and Inventory ▪ California Accidental Release (CalARP) ▪ Aboveground Storage Tank ▪ Uniform Fire Code Article 80 Section 103(b) & (c) 1991 ▪ Underground Storage Tank www.cchealth.org/groups/hazmat/	☐ See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on WQMP Drawings**	**3** **Permanent Controls—List in WQMP Table and Narrative**	**4** **Operational BMPs—Include in WQMP Table and Narrative**
☐ **J.** Vehicle and Equipment Cleaning	☐ Show on drawings as appropriate: (1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses. (2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use). (3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer. (4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.	☐ If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.	Describe operational measures to implement the following (if applicable): ☐ Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system. Refer to "Outdoor Cleaning Activities and Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/ ☐Car dealerships and similar may rinse cars with water only.

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
❑ **K.** Vehicle/Equipment Repair and Maintenance	❑ Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater. ❑ Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas. ❑ Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.	❑ State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area. ❑ State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements. ❑ State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.	In the Stormwater Control Plan, note that all of the following restrictions apply to use the site: ❑ No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains. ❑ No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately. ❑ No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment. Refer to "Automotive Maintenance & Car Care Best Management Practices for Auto Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations". Brochure can be found at http://rcflood.org/stormwater/ Refer to Outdoor Cleaning Activities and Professional Mobile Service Providers for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/

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❑ **L.** Fuel Dispensing Areas	❑ Fueling areas[6] shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable. ❑ Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area[1].] The canopy [or cover] shall not drain onto the fueling area.		❑ The property owner shall dry sweep the fueling area routinely. ❑ See the Fact Sheet SD-30 , "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

[6] The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

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❑ **M.** Loading Docks	❑ Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer. ❑ Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation. ❑ Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		❑ Move loaded and unloaded items indoors as soon as possible. ❑ See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

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☐ **N.** Fire Sprinkler Test Water		☐ Provide a means to drain fire sprinkler test water to the sanitary sewer.	☐ See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
O. Miscellaneous Drain or Wash Water or Other Sources ☐ Boiler drain lines ☐ Condensate drain lines ☒ Rooftop equipment ☐ Drainage sumps ☐ Roofing, gutters, and trim. ☐ Other sources		☐ Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. ☐ Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment. ☐ Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. ☒ Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff. Include controls for other sources as specified by local reviewer.	

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❑ **P.** Plazas, sidewalks, and parking lots.			❑ Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

To be included in the Final WQMP

Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

To be included in the Final WQMP