



DRAFT ENVIRONMENTAL IMPACT REPORT

**DENNISTON / SAN VICENTE WATER SUPPLY PROJECT**

**COASTSIDE COUNTY WATER DISTRICT**

**AUGUST 2014**

LEAD AGENCY:

Coastside County Water District  
766 Main Street  
Half Moon Bay, CA 94109



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PREPARED BY:

Analytical Environmental Services  
1801 7th Street, Suite 100  
Sacramento, CA 95811  
(916) 447-3479  
[www.analyticalcorp.com](http://www.analyticalcorp.com)



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# **SECTION 1.0**

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INTRODUCTION

# 1.0 INTRODUCTION

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This section explains the purpose of the Coastside County Water District (CCWD) Denniston/San Vicente Water Supply Project (Proposed Project) Draft Environmental Impact Report (EIR), establishes the context and scope for the Draft EIR, identifies relevant previous studies, and outlines the process for reviewing the Draft EIR and preparing the Final EIR.

## 1.1 PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

This Draft EIR has been prepared to provide the general public and interested parties with information about the potential environmental impacts of the Proposed Project. The CCWD may utilize this information in deciding whether to proceed with the Proposed Project. The diversion of water discussed as part of the Proposed Project is currently authorized by an existing water rights permit issued to CCWD in 1969 (Permit 15882). The California State Water Resources Control Board (SWRCB), Division of Water Rights (Division) may use this EIR in its role as a responsible agency to make a decision on the petition filed by the CCWD in 2004 to extend the time to put water diverted from Denniston and San Vicente Creeks under the existing permit to full beneficial use. This Draft EIR was prepared in compliance with the California Environmental Quality Act (CEQA, California Public Resources Code §§21000-21178), the CEQA *Guidelines* (California Code of Regulations [CCR], Title 14), and CCWD's procedures for completing environmental documents.

As described in CEQA *Guidelines* Section 15121(a), an EIR is an informational document that assesses potential environmental impacts of a proposed project and identifies mitigation measures and alternatives to the proposed project that could reduce or avoid adverse environmental impacts. As the CEQA Lead Agency for this project, CCWD is required to consider the information in the EIR along with any other available information in deciding whether to approve the project. The basic requirements for an EIR include discussions of the environmental setting, environmental impacts, mitigation measures, alternatives, growth inducing impacts, and cumulative impacts. The EIR is an informational document used in the planning and decision-making process. It is not the intent of an EIR to recommend either approval or denial of a project. This EIR is a "Project EIR," pursuant to CEQA *Guidelines* Section 15161. A Project EIR examines the environmental impacts of a specific project. This type of EIR focuses on the changes in the environment that would result from implementation of the project, including construction and operation.

CEQA requires that a lead agency neither approve nor carry out a project as proposed unless the significant environmental effects have been reduced to an acceptable level, or unless specific findings are made attesting to the infeasibility of altering the project to reduce or avoid

environmental impacts (CEQA *Guidelines*, Sections 15091 and 15092). An acceptable level is defined as eliminating, avoiding, or substantially lessening the significant effects. CEQA also requires that decision-makers balance the benefits of a proposed project against its unavoidable environmental impacts. If environmental impacts are identified as significant and unavoidable, the project may still be approved if it is demonstrated that social, economic, or other benefits outweigh the unavoidable impacts. The lead agency is then required to state in writing the specific reasons for approving the project based on information presented in the EIR, as well as other information in the record. This process is defined as a “Statement of Overriding Considerations” by the CEQA *Guidelines*, Section 15093.

## 1.2 PURPOSE AND NEED

CCWD is responsible for providing its customers with high quality, reliable water service at an affordable price. CCWD currently receives its water from four sources:

- 1) the diversion at Denniston Creek;
- 2) wells adjacent to Pilarcitos Creek;
- 3) wells near Denniston Creek; and
- 4) San Francisco Public Utilities Commission (SFPUC) water from Pilarcitos Lake and Crystal Springs Reservoir.

CCWD is seeking approval from the SWCRB of a petition for extension of time for water right Permit 15882 (Application 22860), which authorizes the direct diversion of water from two local streams, Denniston and San Vicente Creeks. The approval of this extension of time would allow CCWD to complete the construction of the remaining infrastructure improvements needed to integrate these local water supplies into the CCWD distribution system and to facilitate full beneficial use of authorized diversions under Permit 15882. This would increase the availability of and reliance on local water sources, thereby lessening dependence on imported water from the SFPUC. This is discussed further in **Section 3.0**, Project Description.

## 1.3 EIR PROCESS

### 1.3.1 LEAD AGENCY

CCWD is the Lead Agency for the Proposed Project for purposes of environmental review under CEQA. “Lead agency” is defined by CEQA *Guidelines* Section 21067 as “the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment.” In this case, the project being considered for approval is the construction and operation of facilities that would allow full beneficial use of water diverted under an existing water rights permit. Prior to making a decision whether to approve a project,



the Lead Agency is required to certify that the EIR has been completed in compliance with CEQA, that the decision-making body reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the Lead Agency.

### 1.3.2 RESPONSIBLE AGENCY

“Responsible Agency” is defined by CEQA *Guidelines* Section 21069 as “a public agency, other than the lead agency which has responsibility for carrying out or approving a project.” The Responsible Agency is responsible for considering only the effects of those activities involved in a project which it is required by law to carry out or approve. The SWRCB is a Responsible Agency for the Proposed Project because it must consider and act on CCWD’s petition for Extension of Time for Water Right Permit 15882.

### 1.3.3 NOTICE OF PREPARATION AND SCOPING

In accordance with CEQA *Guidelines* Section 15082, a Notice of Preparation (NOP) was circulated to the public, local, state and federal agencies, and other known interested parties for a 30(+)-day public and agency review period on October 19, 2011 (**Appendix A**). The purpose of the NOP was to provide notification that an EIR for the Proposed Project was being prepared and to solicit public input on the scope and content of the document. An Initial Study (IS) was prepared as part of the NOP (**Appendix A**), providing background information and brief analyses of resources and potential impacts associated with the Proposed Project. Comments from agencies and the public provided in written comments submitted in response to the NOP and IS are included within **Appendix B**. Significant issues raised during this scoping process are summarized in **Section 1.4**.

All individuals/organizations that provided comments on the NOP/IS will also be advised as to the availability of this Draft EIR.

### 1.3.4 DRAFT EIR AND PUBLIC REVIEW

This Draft EIR will be circulated for public review and comment for a period of 45 days. During this period, the general public, organizations, and agencies can submit comments to the Lead Agency on the Draft EIR’s accuracy and completeness. Public release of the Draft EIR marks the beginning of a 45-day public review period pursuant to CEQA *Guidelines* Section 15105. The public can review the Draft EIR at CCWD’s website at:

[www.coastsidewater.org](http://www.coastsidewater.org)

or at the following addresses during normal business hours, Monday through Friday, except holidays:

Coastside County Water District  
766 Main Street  
Half Moon Bay, CA 94019

Half Moon Bay Library  
620 Correas Street  
Half Moon Bay, CA 94019

Comments may be submitted both in written form and/or orally at the public hearing on the Draft EIR. Notice of the time and location of the hearing will be published in local newspapers, mailed to property owners and residents surrounding the project site, posted on CCWD's website, and posted at and adjacent to the site prior to the hearing. All comments or questions regarding the Draft EIR submitted in writing should be addressed to:

Coastside County Water District  
c/o David R. Dickson, General Manager  
766 Main Street  
Half Moon Bay, CA 94019  
(650) 726-4405  
ddickson@coastsidewater.org

### **1.3.5 FINAL EIR AND EIR CERTIFICATION**

Upon completion of the public review period, a Final EIR will be prepared. It will include written comments on the Draft EIR received during the public review period and CCWD's responses to those comments. The Final EIR will also include the Mitigation Monitoring and Reporting Plan (MMRP) prepared in accordance with Section 21081.6 of the Public Resource Code. The Final EIR will describe any revisions to the Draft EIR made in response to public comments. The Draft EIR and Final EIR together will comprise the EIR for the Proposed Project. Before CCWD can approve the project, it must first certify that the EIR has been completed in compliance with CEQA, that CCWD's Board of Directors has reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of CCWD. CCWD's Board of Directors also will be required to adopt Findings of Fact, and, for any impacts determined to be significant and unavoidable, adopt a Statement of Overriding Considerations.

## **1.4 ISSUES AND CONCERNS RAISED DURING SCOPING**

Listed below is a summary of concerns raised during the scoping process, and in italics, a response describing how the comment was addressed. Comment letters received during the scoping period are included as **Appendix B**.

## Project Description

The National Parks Service (NPS) requested that CCWD provide a map of easement areas on the project site and surrounding land ownership, as well as a complete project schedule for all proposed infrastructure development.

*A detailed description of the Proposed Project, including figures and a proposed construction schedule, is included in **Section 3.0**, Project Description.*

## Aesthetics and Visual Resources

The NPS requested that CCWD provide a visual impact analysis in relation to viewsheds as seen from adjacent lands to assess potential impacts to aesthetics as a result of the Proposed Project.

*Impacts associated with aesthetics are addressed in **Section 4.1**, Aesthetics and Visual Resources.*

## Biological Resources

The NPS requested that CCWD provide a complete description of potential direct and indirect impacts to instream habitat for anadromous fish as a result of the Proposed Project. The NPS also requested the exploration of several project alternatives, including an offstream reservoir in place of the current onstream Denniston Reservoir.

*Impacts associated with biological resources, including anadromous fish, are addressed in **Section 4.3**, Biological Resources. The alternatives to the Proposed Project are presented in **Section 6.0**, Alternatives.*

The Sierra Club's Loma Prieta Chapter Coastal Issues Committee points out that there are issues requiring resolution in relation to California red-legged frog occurrences at Denniston Reservoir and San Vicente Creek.

*Impacts associated with biological resources, including California red-legged frog, are addressed in **Section 4.3**, Biological Resources.*

## Cultural Resources

Native American Heritage Commission (NAHC) recommends procedures to adequately comply with the provisions of CEQA in determining potential impacts to historical resources, including archeological resources.

*This comment is addressed in **Section 4.4**, Cultural Resources.*

## **Geology and Soils**

The NPS claims that the IS for the Proposed Project dismisses analyzing the project for geological hazards and request that geologic hazards be evaluated for potential threats to structures, systems, and water supply.

*An analysis of potential geologic hazards is included in **Section 4.5**, Geology and Soils.*

## **Hazards and Hazardous Materials**

Montara Water and Sanitary District (MWSD) and the NPS both requested that the soils proposed for storage at the sediment storage sites be tested for chemicals that pose a health hazard to humans or other hazard to the surrounding environment and watersheds.

*Impacts associated with hazardous materials are addressed in **Section 4.7**, Hazards and Hazardous Materials.*

## **Hydrology and Water Quality**

Several commenters, including the MSWD, the Sierra Club's Loma Prieta Chapter, and the NPS question whether there is sufficient water supply in the watersheds to support the full diversion and use requested by the Petition for Extension of Time for Permit 15882.

*A full analysis of the hydrology and water availability in San Vicente and Denniston Creeks is provided in **Section 4.8**, Hydrology and Water Quality.*

MSWD expresses concerns about the potential depletion of groundwater levels in the Airport Aquifer down slope from the project site especially during droughts, changes to water quality, or other hydrological impacts to downstream users resulting from the project.

*A full analysis of the hydrology and water quality of the project region is provided in **Section 4.8**, Hydrology and Water Quality. The use of ground water as a part of the overall operations of the CCWD consistent with current court-ordered allocation of ground water between CCWD and MWSD is also discussed in this section.*

## Noise

The NPS expressed concern regarding potentially high levels of noise associated with pump structures to be installed on San Vicente Creek, directly adjacent to future NPS lands, and the potential for this noise to disrupt the natural experience of visitors to the NPS lands.

*A full analysis of potential noise sources associated with the Proposed Project components is presented in **Section 4.9, Noise**.*

## 1.5 SCOPE OF THE EIR

In accordance with CEQA *Guidelines* Section 15063, the Initial Study/NOP (**Appendix A**; AES, 2011), in conjunction with comments received during scoping (**Appendix B**), was used to focus the EIR on effects determined to be potentially significant.

### Effects not Found to be Significant

CEQA *Guidelines* Section 15128 states that an “EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR.” The following environmental issues were identified in the Initial Study as being less than significant and therefore are not evaluated further in this EIR: Agricultural Resources, Mineral Resources, Population and Housing, Public Services, Recreation, and Utilities and Service Systems (**Appendix A**; AES, 2011). The Proposed Project would result in either no impact or less-than-significant impacts to these resource areas for the following reasons:

- **Agricultural Resources:** The Proposed Project would not convert any agricultural land to non-agricultural use. The Proposed Project would not alter the diversion regime of other diverters who share water in the two creeks. No impact would occur.
- **Mineral Resources:** Mineral resources have not been identified within the project site, according to San Mateo County Resource Maps. No impact would occur.
- **Population and Housing:** As described in the IS, the Proposed Project does not involve the construction of new homes or businesses. Existing roads would be used during construction and for project operations. The Proposed Project would not induce substantial population growth either directly or indirectly or create a significant need for additional housing. The Proposed Project adheres to statutes such as the San Mateo County Local Coastal Program that limit growth in the project vicinity. This project would not impact existing levels of development. No residences or people would be displaced by the proposed project. Impacts to population and housing would be less than significant.

- **Public Services:** The Proposed Project would not result in substantial growth that would require additional public services. The proposed project would not adversely impact the County's ability to provide fire and police protection, or impact the maintenance of schools, parks, or other public facilities. No impact would occur.
- **Recreation:** The Proposed Project would not result in substantial population growth or the associated increased use of recreational facilities, and does not include the construction or expansion of recreational facilities. The proposed project would also not adversely impact recreational opportunities or prohibit the maintenance of existing recreational opportunities. No impact would occur.
- **Utilities and Service Systems:** The Proposed Project would not exceed water treatment requirements or result in the construction of new water or wastewater treatment facilities. The Proposed Project involves the replacement of an existing diversion structure and pipelines that would connect San Vicente water to the existing water treatment plant. Onsite workers would generate a minimum amount of construction waste and solid waste, and therefore a less than significant impact to the landfill capacity in the area would occur. The Proposed Project would not conflict with any statutes or regulations related to solid waste. Impacts to utilities and service systems would be less than significant.

### Effects Found to be Potentially Significant

The following environmental resources were determined to have the potential to be significantly affected by the Proposed Project based on preliminary analysis provided in the IS, as well as comments received during the scoping process, and have therefore been addressed in detail in this Draft EIR:

- Aesthetics and Visual Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils and Mineral Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise

### CEQA Required Sections

In addition to those resources described above, the Draft EIR will discuss the following mandatory CEQA considerations: cumulative impacts, secondary impacts including potential

impacts resulting from growth inducement, and significant irreversible changes to the environment.

## 1.6 TERMINOLOGY USED IN THE EIR

This EIR uses the following terminology to describe environmental effects of the Proposed Project and Alternatives:

- **Significance Criteria:** A set of criteria used by the Lead Agency to determine at what level or “threshold” an impact would be considered significant. Significance criteria used in this Draft EIR include factual or scientific information, regulatory standards of local, state, and federal agencies, and/or guiding and implementing goals and policies identified in local plans.
- **Less Than Significant Impact:** A less than significant impact would cause no substantial change in the environment (no mitigation required).
- **Less Than Significant Level:** The level below which an impact would cause no substantial change in the environment (no mitigation required).
- **Potentially Significant Impact:** A potentially significant impact may cause a substantial change in the environment; however, it is not certain that effects would exceed specified significance criteria. For CEQA purposes, a potentially significant impact is treated as if it were a significant impact. Mitigation measures and/or project alternatives are identified to reduce project effects to the environment.
- **Significant Impact:** A significant impact would cause a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by the evaluation of effects using specified significance criteria. Mitigation measures and/or project alternatives are identified to reduce or avoid project effects to the environment.
- **Significant and Unavoidable Impact:** A significant and unavoidable impact would result in a substantial change in the environment that cannot be avoided or mitigated to a less-than-significant level if the project is implemented.
- **Cumulative Significant Impact:** A cumulative significant impact would result in a substantial change in the environment from effects of the project as well as surrounding projects and reasonably foreseeable development in the surrounding area. To be considered significant a project’s impact must be a cumulatively considerable contribution to a substantial change in the environment.
- **Mitigation:** Mitigation includes measures recommended in the Draft EIR and imposed as condition of approval by the Lead Agency that:
  - avoid the impact altogether by not taking a certain action or parts of an action;
  - minimize impacts by limiting the degree or magnitude of the action and its implementation;



- rectify the impact by repairing, rehabilitating, or restoring the affected environment; and/or
- reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action; and compensate for the impact by replacing or providing substitute resources or environments.

## 1.7 ORGANIZATION OF THE REPORT

The contents of this Draft EIR are consistent with CEQA *Guidelines*, and include the following:

- **Section 1, Introduction** - Provides an introduction and overview of the Draft EIR, describes the intended use of the Draft EIR, and describes the review and certification process.
- **Section 2, Executive Summary** - Summarizes the elements of the project and the environmental impacts that could result from implementation of the Proposed Project, and provides a table which lists impacts, describes proposed mitigation measures, and indicates the level of significance of impacts after mitigation.
- **Section 3, Project Description** - Provides a detailed description of the Proposed Project, including its location, background information, major objectives, and components.
- **Section 4, Environmental Setting, Impacts, and Mitigation Measures** – Describes the baseline environmental setting and provides an assessment of impacts for each resource category presented in **Section 1.5**. Each section is divided into four sub-sections: Introduction, Existing Environmental Setting, Regulatory Background, and Impacts and Mitigation Measures.
- **Section 5, CEQA Considerations** - Provides discussions required by CEQA regarding impacts that would result from the Proposed Project, including a summary of cumulative impacts, secondary impacts, including potential impacts resulting from growth inducement, and significant irreversible changes to the environment.
- **Section 6, Project Alternatives** – Describes and compares alternatives to the Proposed Project and associated environmental consequences.
- **Section 7, EIR Authors and Persons Consulted** - Lists report authors and agencies consulted for technical assistance in the preparation and review of the Draft EIR.
- **Section 8, References** - Provides bibliographic information for all references and resources cited.
- **Section 9, Acronyms** – Provides a list of definitions for all acronyms used in the Draft EIR.
- **Appendices** – Includes various documents and data directly related to the analysis presented in the Draft EIR.

# **SECTION 2.0**

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## EXECUTIVE SUMMARY

## 2.0 EXECUTIVE SUMMARY

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### 2.1 INTRODUCTION

This section provides a summary of the Denniston/San Vicente Water Supply Project (Proposed Project), environmental impacts that would result from project implementation, a summary of project alternatives, and the potential areas of controversy. This section also includes a table summarizing the impacts of the Proposed Project and mitigation measures that have been identified to reduce potentially significant environmental impacts to less than significant levels.

This Environmental Impact Report (EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) statutes and *Guidelines*. The Coastside County Water District (CCWD) is the lead agency for this CEQA process. Inquiries about the Proposed Project and the CEQA process should be directed to:

Coastside County Water District  
c/o David R. Dickson, General Manager  
766 Main Street  
Half Moon Bay, CA 94019  
(650) 726-4405  
ddickson@coastsidewater.org

### 2.2 PROJECT LOCATION

The Proposed Project area is located within the northern section of the CCWD's 14 square-mile service area in unincorporated San Mateo County. The Proposed Project is located approximately 1.75 miles northwest of the community of El Granada and 1.5 miles east of the community of Montara. The Proposed Project is surrounded on the west by agricultural land and an airport, on the north and south by residential development, and on the east by open space.

### 2.3 PROJECT UNDER REVIEW

The Proposed Project includes the following project components, which are described in more detail in **Section 3.2**:

- 1) Water Right Permit 15882 – petition for extension of time;
- 2) New Diversion Structure and Pump Station – San Vicente Creek;

- 3) New and Upgraded Pipeline – between San Vicente Creek and Denniston Reservoir pump station (6,100 feet);
- 4) Denniston Water Treatment Plant (WTP) – expand capacity up to 1,500 gallons per minute (gpm);
- 5) New Booster Pump Station;
- 6) New Pipelines – along Bridgeport Drive (3,460 feet); and
- 7) Expanded sediment removal from the Denniston Reservoir.

The installation of the permanent diversion structure and pump station San Vicente Creek will replace the semi-permanent structure currently in use, and the new 6,100-foot-long underground pipeline will convey San Vicente Creek water from the permanent diversion to the Denniston Reservoir pump station. From there, existing pipelines will convey the water to the Denniston Creek WTP for treatment, which would be increased in capacity up to 1,500 gpm under the Proposed Project. The proposed booster pump station will be located adjacent to the existing Denniston Creek Pump Station to transfer treated water from the Denniston Tank into the distribution system throughout the CCWD service area, which will be supplemented by 3,460 feet of upgraded pipelines along Bridgeport Drive. The current dredging maintenance regime at Denniston Reservoir would also be expanded to enable higher quality of water diverted from Denniston Creek to the Denniston WTP.

The CCWD will serve as the Lead Agency under CEQA for the approval of construction and operation of these proposed facilities. Diversion of water from San Vicente and Denniston Creeks is currently authorized under Water Right Permit 15882. The Proposed Project also seeks an extension of time from the State Water Resources Control Board (SWRCB) to complete the construction of necessary infrastructure to put the diverted water to full beneficial and reasonable use under the existing permit. This extension of time and completion of infrastructure improvements would allow CCWD to better utilize, and maximize efficiency of local water sources. The SWRCB is a responsible agency under CEQA and has approval authority over the requested extension of time. The Proposed Project is described in more detail in **Section 3.0** of this Draft EIR.

## 2.4 SCOPING ISSUES

In accordance with CEQA Guidelines Section 15082, the Lead Agency circulated a Notice of Preparation (NOP) for this Draft EIR on October 19, 2011. Presented in **Appendix A** of this Draft EIR, the NOP established a 30+ day scoping period that was extended for the benefit of public review to November 23, 2011. The NOP was circulated to the public, local, state and federal agencies, and other known interested parties. The purpose of the NOP was to solicit input from agencies, organizations, and interested parties to assist the Lead Agency in determining the appropriate scope and content of the Draft EIR. To facilitate this process,

CCWD completed an Initial Study (IS) which provided additional information to the public for their review and comment (**Appendix A**).

### Areas of Controversy

Environmental issues and concerns identified by individuals and agencies during the scoping process are summarized below:

- A full analysis of water availability in the San Vicente and Denniston Creeks must be performed to identify potential changes to water quality, hydrological impacts to downstream uses, and potential depletion of groundwater levels.
- Biological resources of San Vicente and Denniston Creeks should be thoroughly evaluated in the Draft EIR.
- The Draft EIR should assess possible impacts to aesthetics, air quality, greenhouse gas emissions, ground water, water quality, soil quality, geology, and biological resources.

Each of these issues is evaluated in **Section 4.0** of this Draft EIR.

## 2.5 ALTERNATIVES TO THE PROPOSED PROJECT

The CEQA *Guidelines* require EIRs to describe and evaluate a range of reasonable alternatives to a project, or to the location of a project, which would feasibly attain most of the basic project objectives and avoid or substantially lessen significant project impacts. **Section 5.0** evaluates the potential alternatives to the Proposed Project, and also includes a description of alternatives withdrawn from further consideration. Potential alternatives examined for the Proposed Project in this Draft EIR include the Lower (1,200 gallons per minute (gpm)) Denniston WTP Capacity Alternative, the Current (1,000 gpm) Denniston WTP Capacity Alternative, and the No Project/Baseline Alternative. With the No Project/Baseline Alternative, the project site would remain as it currently exists with the temporary diversion structure and no water diverted from San Vicente Creek, but diversions would continue from Denniston Creek at up to 1.89 cubic feet per second (cfs).

## 2.6 SUMMARY OF IMPACTS AND MITIGATION MEASURES

**Table 2-1** presents a summary of project impacts and proposed mitigation measures that would further avoid or minimize potential impacts. In the table, the level of significance of each environmental impact is indicated both before and after the application of the recommended mitigation measure(s). For detailed discussions of all project impacts and mitigation measures, the reader is referred to environmental analysis sections in **Section 4.0**.

Acronyms used within **Table 2-1** to describe levels of significance are explained below:

- NA – Not applicable
- BI – Beneficial impact
- NI – No impact
- LTS – Less than significant
- PS – Potentially significant
- SU – Significant and unavoidable

**TABLE 2-1**  
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
<b>4.1 AESTHETICS</b>			
<b>Impact 4.1-1.</b> Development of the Proposed Project could potentially degrade the existing visual character or quality of the site and its surroundings.	LTS	None Required.	LTS
<b>4.2 AIR QUALITY</b>			
<b>Impact 4.2-1.</b> Construction and/or operation of the proposed project could potentially degrade the existing air quality in the region of the project site.	SI	<b>Mitigation Measure 4.2-1:</b> The following mitigation measures shall be implemented by the Applicant to reduce construction related criteria emissions: <ul style="list-style-type: none"> <li>▪ All exposed surfaces (e.g. parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.</li> <li>▪ All haul trucks transporting soil, sand, or other loose material off-site shall be covered.</li> <li>▪ All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power seeping is prohibited.</li> <li>▪ All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.</li> <li>▪ All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.</li> <li>▪ Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.</li> <li>▪ All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.</li> </ul> <p>Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action</p>	LTS

Less than Significant = LTS

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**TABLE 2-1**  
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.	
<b>Impact 4.2-2.</b> Development of the Proposed Project in combination with other projects in the SFBAAB could potentially cumulatively degrade the existing air quality of the site and its surroundings.	LTS	None Required.	LTS
<b>Impact 4.2-3.</b> Development of the Proposed Project could potentially emit odor beyond the project boundary.	LTS	None Required.	LTS
<b>4.3 BIOLOGICAL RESOURCES</b>			
<b>Impact 4.3-1.</b> Development of the Proposed Project has the potential to impact special status species.	SI	<p><b>Mitigation Measure 4.3-1a:</b> A qualified botanist shall conduct a focused botanical survey within the blooming period (February through April) for fragrant fritillary prior to commencement of construction activities within the coastal scrub, California annual grassland, and coastal prairie habitats. A letter report shall be prepared and submitted to the CCWD following the preconstruction survey to document the results. Should no fragrant fritillary be observed, then no additional mitigation will be required.</p> <p><b>Mitigation Measure 4.3-1b:</b> Should fragrant fritillary be observed during the focused botanical survey, the botanist shall contact the CCWD and the CDFW within one day following the preconstruction survey to report the findings. If feasible, a ten-foot buffer shall be established around the species using construction flagging prior to commencement of construction activities.</p> <p><b>Mitigation Measure 4.3-1c:</b> Should avoidance of fragrant fritillary, a CNPS-listed 1B species protected under the Native Plant Protection Act, be infeasible, the qualified botanist would salvage and relocate the individuals to an area comprised of suitable habitat in the vicinity of the project site that would not be impacted by the Proposed Project.</p> <p><b>Mitigation Measure 4.3-1d:</b> All work within the bed or on the banks of either San Vicente</p>	LTS

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**TABLE 2-1**  
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		<p>or Denniston Creeks shall be restricted to low-flow periods, generally between July 1 and October 15. If the channel is dry, construction may occur outside of this period.</p> <p><b>Mitigation Measure 4.3-1e:</b> In the event the channels are not sufficiently dry to allow work within them, water shall be diverted around the stream reach where the diversion structure is to be installed using coffer dams or other CDFW-approved methods.</p> <p><b>Mitigation Measure 4.3-1f:</b> Best management practices (BMPs), including but not limited to, silt screens and sediment curtains, shall be placed downstream of the construction site to prevent transport of sediments from the project area to downstream reaches of the stream.</p> <p><b>Mitigation Measure 4.3-1g:</b> To the extent feasible, the stream banks shall be returned to original grade slope after construction, and riparian vegetation shall be replaced consistent with CDFW-approved methods. Bank stabilization measures, such as planting of riparian trees, the use of biodegradable jute netting, and/or hydro seeding with a native seed mix, shall be implemented to reduce potential for erosion and sedimentation within the stream channel.</p> <p><b>Mitigation Measure 4.3-1h:</b> The new POD will be screened for CRLF (see <b>Mitigation Measure 4.3-1i</b>).</p> <p><b>Mitigation Measure 4.3-1i:</b> Removal of the existing diversion structure and construction of the new diversion structure and pump station within San Vicente Creek and within the riparian vegetation surrounding San Vicente Creek, installation of the pipeline within the riparian vegetation surrounding San Vicente Creek, and maintenance activities associated with dredging activities to maintain Denniston Reservoir shall be limited to the period of September 1 through October 15, which is after CRLF larval development and before the breeding season.</p> <p><b>Mitigation Measure 4.3-1j:</b> The proposed replacement of the existing pipeline and the installation of the new pipeline within the nonnative annual grassland and all other habitats within 1.6 kilometers of aquatic features shall be limited to the period of March 15 to October 15.</p> <p><b>Mitigation Measure 4.3-1k:</b> An approved biological monitor shall be present on site during all construction activities.</p>	

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**TABLE 2-1**  
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		<p><b>Mitigation Measure 4.3-1l:</b> New intake structures shall be equipped with a barrier to prevent CRLF juveniles or tadpoles or SFGS from being entrained. The barriers shall be screened with no greater than five millimeter mesh diameter.</p> <p><b>Mitigation Measure 4.3-1m:</b> To the degree cofferdams are needed and flows will be bypassed during construction, flow shall be restored to the affected stream immediately upon completion of work at that location. Flow diversions shall be done in a manner that shall prevent pollution and/or siltation and which shall provide flows to downstream reaches of Denniston Creek and San Vicente Creek.</p> <p><b>Mitigation Measure 4.3-1n:</b> During dredging activities at Denniston Reservoir, any decrease in water surface elevation (WSE) shall be controlled such that WSE does not change at a rate that increases turbidity to Denniston Creek that could be deleterious to aquatic life and/or the likelihood of stranding aquatic life in the manmade reservoir.</p> <p><b>Mitigation Measure 4.3-1o:</b> At least 14 days prior to the onset of any construction or maintenance activities, the applicant shall submit the name(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities shall begin until the applicant has received written approval from the USFWS/CDFW that the biologist(s) is qualified to conduct the work.</p> <p><b>Mitigation Measure 4.3-1p:</b> Upon completion of the Section 7 consultation process, the USFWS will consider if an appropriate relocation site exists in the event a need arises to relocate either of the species. The applicant would be required to obtain a biological opinion with an incidental take statement from the USFWS in the event that the USFWS determines that the Proposed Project would result in take of CRLF. If the USFWS approves moving CRLF, the approved biologist will be allowed sufficient time to move them from the work site before work activities begin. Close biological monitoring (see Mitigation Measure 4.3-1k above) and encouraging the species to leave the work area of their own accord would be the preferred method. Only USFWS-approved biologists shall participate in activities associated with the capture, handling, and monitoring of CRLF. Any SFGS found to occur shall be allowed to leave the work area of their own accord, and shall be monitored as practical by the biologist to ensure they do not reenter the work area. Furthermore, if SFGS are observed, exclusion fencing shall be considered in consultation with CDFW and USFWS to prevent the return of the SFGS.</p> <p><b>Mitigation Measure 4.3-1q:</b> Prior to commencement of any groundbreaking activities, all</p>	

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**TABLE 2-1**  
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		<p>construction personnel will receive training on listed species and their habitats by an approved biologist. The importance of these species and their habitat will be described to all employees as well as the minimization and avoidance measures that are to be implemented as part of the Proposed Project. An educational brochure containing color photographs of all listed species in the work area(s) will be distributed to all employees working within the project site. The original list of employees who attend the training sessions will be maintained by the applicant and be made available for review by the USFWS and the CDFW upon request.</p> <p><b>Mitigation Measure 4.3-1r:</b> All best management practices prescribed by the San Mateo County planning office for work within sensitive habitat areas will be implemented to the full extent such as eliminating the use of herbicide or pesticide in a riparian area, protecting native vegetation, minimizing soil compaction, seed or plant temporary vegetation for erosion control, protect down slope drainage courses, streams, and storm drains with hay bales, temporary drainage swales, silt fences, berms or storm drain inlet filters (County of San Mateo Public Works).</p> <p><b>Mitigation Measure 4.3-1s:</b> Construction equipment used to remove the existing diversion structure and construct the new diversion structure and pump station along San Vicente Creek and the additional and ongoing dredging of Denniston Reservoir shall be located adjacent to aquatic habitats in upland areas with the least amount of riparian vegetation, to minimize disturbances to the maximum extent practicable.</p> <p><b>Mitigation Measure 4.3-1t:</b> All vehicles associated with construction and excavation activities will be clustered within designated staging areas at the end of each work day or when not in use to minimize habitat disturbance and water quality degradation.</p> <p><b>Mitigation Measure 4.3-1u:</b> Before vehicles move from the staging areas at the start of each work day or before they return to this location at the end of each work day, the onsite biological monitor will check under the vehicles and their tires to ensure no listed species are utilizing the equipment as temporary shelter. In addition, the qualified biologist shall inspect the vicinity of the anticipated work area that will support the construction equipment. Any vehicle parked within the project site for more than 15 minutes shall be inspected by the biological monitor before it is moved to ensure that CRLF or SFGS have not moved under the vehicle.</p> <p><b>Mitigation Measure 4.3-1v:</b> Fifteen miles per hour speed limits shall be enforced while</p>	

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		<p>driving in the project site, including transporting excavated material to the disposal site for the dredging material associated with Denniston Reservoir to the previously identified and used disposal sites within the eucalyptus grove.</p> <p><b>Mitigation Measure 4.3-1w:</b> Prior to deposition of fill at the disposal site associated with the eucalyptus grove, the biological monitor shall inspect the areas to verify that CRLF or SFGS are not present. If any CRLF or SFGS are present, the excavated material shall not be placed until the individuals leave the area or unless the qualified biologist is permitted by the USFWS to capture and relocate the CRLF.</p> <p><b>Mitigation Measure 4.3-1x:</b> Because CRLF and SFGS may take refuge in cavity-like and den-like structures such as pipes and may enter stored pipes and become trapped, all construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the biological monitor for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way.</p> <p><b>Mitigation Measure 4.3-1y:</b> Construction equipment used to remove the existing diversion structure and construct the new diversion structure and pump station along San Vicente Creek and to dewater and dredge the manmade reservoir along Denniston Creek shall be located adjacent to aquatic habitats in upland areas with the least amount of riparian vegetation, to the maximum extent practicable.</p> <p><b>Mitigation Measure 4.3-1z:</b> Prior to commencement of any groundbreaking activities, all construction personnel will receive training on WPT. The training will be incorporated as described for CRLF and SFGS.</p> <p><b>Mitigation Measure 4.3-1aa:</b> Before vehicles move from the staging areas at the start of each work day or before they return to this location at the end of each work day, the biological monitor will check under the vehicles and their tires to ensure no WPT are utilizing the equipment as temporary shelter. In addition, the qualified biologist shall inspect the vicinity of the anticipated work area that will support the construction equipment.</p> <p><b>Mitigation Measure 4.3-1bb:</b> Prior to commencement of daily construction or excavation activities, the biological monitor will conduct a preconstruction survey for WPT. If WPT is present, the biologist will be allowed sufficient time to move them from the work site before work activities begin.</p>	

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**TABLE 2-1**  
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		<p><b>Mitigation Measure 4.3-1cc:</b> If any trees are proposed for removal, a qualified wildlife biologist shall conduct a focused survey for roosting bats no more than 14 days prior to the anticipated date of tree removal. Trees that contain cavities will be thoroughly investigated for evidence of bat activity. A letter report shall be prepared and submitted to the applicant following the preconstruction survey to document the results. If the preconstruction survey determines that there is no evidence of roosts, then no additional mitigation will be required so long as construction commences within 14 days prior to the preconstruction survey.</p> <p><b>Mitigation Measure 4.3-1dd:</b> If special status bats are found roosting within any trees slated for removal, the areas shall be demarcated by exclusionary fencing and avoided until a qualified biologist can assure that the bats have vacated.</p> <p><b>Mitigation Measure 4.3-1ee:</b> A qualified biologist shall conduct a preconstruction survey to determine if active woodrat nests occur within a ten-foot buffer of areas to be cleared of riparian vegetation within 14 days prior to commencement of construction activities. Similar surveys shall be conducted in and immediately adjacent to the use of the existing dredge disposal sites. A letter report shall be prepared and submitted to the applicant following the preconstruction survey to document the results. If the preconstruction survey determines that there is no evidence of nests, then no additional mitigation will be required so long as construction commences within 14 days prior to the preconstruction survey.</p> <p><b>Mitigation Measure 4.3-1ff:</b> If woodrat nests are present and determined to be occupied, each woodrat shall be relocated to suitable habitat in consultation with the CDFW. If young are found within the nest, the nest material shall remain in its existing condition and a ten-foot buffer around the nest shall be established. No work shall occur within the ten-foot buffer until a qualified biologist determines that the young have been weaned (up to six weeks from birth), at which point the biologist should dismantle and relocate the nest to an area with suitable habitat that would not be impacted by the Proposed Project.</p> <p><b>Mitigation Measure 4.3-1gg:</b> Should any trees be anticipated for removal, they should be removed between September 16 and March 14, which is outside of the nesting bird season (the nesting bird season is between March 15 and September 15).</p> <p><b>Mitigation Measure 4.3-1hh:</b> Should removal be required outside of the dates identified in 4.3-1ff then a qualified biologist shall conduct a preconstruction survey within 14 days prior to commencement of any construction activities associated with the Proposed Project should construction be anticipated to commence during the nesting season for birds of prey</p>	

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**TABLE 2-1**  
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		<p>and migratory birds (between March 15 and September 15). A letter report shall be prepared and submitted by the applicant following the preconstruction survey to document the results. If surveys show that there is no evidence of nests, then no additional mitigation will be required so long as construction commences within 14 days prior to the preconstruction survey.</p> <p><b>Mitigation Measure 4.3-1ii:</b> If any active nests are located within the vicinity of the project site, a buffer zone shall be established around the nests. A qualified biologist shall monitor nests weekly during construction to evaluate potential nesting disturbance by construction activities. The biologist should delimit the buffer zone with construction tape or pin flags within 100 feet of the active nest and maintain the buffer zone until the end of breeding season or the young have fledged. Guidance from the CDFW will be requested if establishing a 100-foot buffer zone is impractical. A letter report shall be prepared and submitted to the applicant following the preconstruction survey to document the results.</p>	
<p><b>Impact 4.3-2.</b> <b>Development of the Proposed Project has the potential to impact sensitive habitat including the riparian vegetation of San Vicente Creek and Denniston Creek</b></p>	<p align="center"><b>SI</b></p>	<p><b>Mitigation Measure 4.3-2a:</b> The applicant shall comply with the policies identified within the sensitive habitat component of the LCP and the General Plan by obtaining a CDP from the County</p> <p><b>Mitigation Measure 4.3-2b:</b> The applicant shall comply with a Riparian Restoration and Monitoring Plan (RRMP). The RRMP shall include performance criteria and development standards for development permitted within the riparian vegetation.</p> <p><b>Mitigation Measure 4.3-2c:</b> Riparian habitat impacts shall be replaced or enhanced in the area of impact or, if infeasible, within reasonable proximity to the project site as identified in the RRMP. Examples of restoration include but are not limited to re-contouring of the creek to offset the impacts from the current inefficient diversion and the related undercutting of the stream channel which has occurred, the replanting of native vegetation to offset any unavoidable removal of trees or understory and possible measures designed to avoid further erosion and the removal of debris from both creeks and their associated riparian habitat. If additional measures are required in the State or Federal Permitting process then they shall also be followed and included in the RRMP.</p>	<p align="center"><b>LTS</b></p>
<p><b>Impact 4.3-3.</b> <b>Development of the Proposed Project has the potential to impact waters of the United States.</b></p>	<p align="center"><b>SI</b></p>	<p><b>Mitigation Measure 4.3-3a:</b> Unavoidable impacts to waters of the United States shall be mitigated consistent with the existing agreements between the USACE and the EPA with an emphasis on for onsite restoration to ensure a no net loss to waters of the United States and of the state.</p> <p><b>Mitigation Measure 4.3-3b:</b> Avoid the 0.01 acre seasonal wetland during construction of</p>	<p align="center"><b>LTS</b></p>

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**TABLE 2-1**  
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		the pipeline.	
<b>Impact 4.3-4.</b> Removal and disposal of the dredge material has the potential to impact biological resources.	<b>SI</b>	<p><b>Mitigation Measure 4.3-4a:</b> Prior to dredging, soils to be removed will be sampled and tested for contaminants. The samples shall at a minimum be tested for the following constituents: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc. If sampling of the dredged materials indicates that soils may constitute hazardous materials then they shall be disposed of in accordance with corresponding California statutory regulations at an approved dredge disposal site. Recycleworks.org is a program of San Mateo County and is a guide for building contractors on how to properly dispose of hazardous materials.</p> <p><b>Mitigation Measure 4.3-4b:</b> Dredging shall generally be from the dam side and along the road in order to minimize impacts to the surrounding environment.</p> <p><b>Mitigation Measure 4.3-4c:</b> To the degree feasible the dredging shall be done in a manner that restores an upstream channel of Denniston creek coming into the reservoir.</p> <p><b>Mitigation Measure 4.3-4d:</b> All dredged material will be disposed of at one of the two on-site disposal areas if sampling indicates that soils do not constitute hazardous materials.</p>	<b>LTS</b>
<b>Impact 4.3-5.</b> Development of the Proposed Project has the potential to impact trees	<b>SI</b>	<b>Mitigation Measure 4.3-5:</b> If trees covered by the County Tree Ordinance are required to be removed, the applicant shall comply with the policies identified within the San Mateo County Significant Tree Ordinance, including an arborist report and specific mitigation including replacement planting. No trees over 38 inches are currently anticipated to be removed under this project.	<b>LTS</b>
<b>4.4 CULTURAL RESOURCES</b>			
<b>Impact 4.4-1.</b> Development of the Demonstration Project may impact previously unidentified cultural resources or may disturb human remains.	<b>SI</b>	<p><b>Mitigation Measure 4.4-1a:</b> Should any buried archaeological material, such as flaked stone, historic debris, or human remains be inadvertently discovered during ground-disturbing activities, work should stop in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop treatment measures in consultation with appropriate agencies.</p> <p><b>Mitigation Measure 4.4-1b:</b> If human remains are discovered during project construction, work will stop at the discovery location and any nearby area reasonably suspected to overlie</p>	<b>LTS</b>

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**TABLE 2-1**  
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		human remains (Public Resources Code, Section 7050.5). The San Mateo County coroner will be contacted to determine if the cause of death must be investigated. If the coroner determines that the remains are of prehistoric Native American origin, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the NAHC (Public Resources Code, Section 5097). The coroner will contact the NAHC. The most likely descendants (MLD) of the deceased will be contacted, and work will not resume until the appointed MLD has made a recommendation to the landowner or the person responsible for the excavation work for means of treating and disposing of, with appropriate dignity, the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98. Work may resume if NAHC is unable to identify a descendant or the descendant fails to make a recommendation within 48 hours.	
<b>4.5 GEOLOGY AND SOILS</b>			
Impact 4.5-1. The Proposed Project would result in the construction of structures within a seismically active area.	LTS	None required.	LTS
<b>4.6 GREENHOUSE GAS EMISSIONS</b>			
Impact 4.6-1. Construction and operation of the Proposed Project has the potential to result in cumulatively considerable GHG emissions.	SI	<b>Mitigation Measure 4.6-1:</b> Implement <b>Mitigation Measure 4.2-1</b> , which would reduce project-related GHG emissions by three percent.	LTS
<b>4.7 HAZARDS AND HAZARDOUS MATERIALS</b>			
Impact 4.7-1. Equipment used during grading and construction activities may create sparks, which could ignite dry grass on the project site.	SI	<b>Mitigation Measure 4.7-1a:</b> During construction, staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a firebreak.  <b>Mitigation Measure 4.7-1b:</b> Any construction equipment that normally includes a spark	LTS

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

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		arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.	
<p><b>Impact 4.7-2.</b> The Proposed Project is located within the planning area for the San Mateo County Comprehensive Airport Land Use Compatibility Plan, and therefore could result in potential safety hazards for people residing or working in the project area.</p>	<b>LTS</b>	None Required.	<b>LTS</b>
<p><b>Impact 4.7-3.</b> Construction of the Proposed Project would include the routine storage and handling of hazardous materials, which could result in a public health or safety hazard from the accidental release of hazardous materials into the environment.</p>	<b>SI</b>	<p><b>Mitigation Measure 4.7-2:</b> Personnel shall follow written Standard Operating Procedures (SOPs) for filling and servicing construction equipment and vehicles. The SOPs, which are designed to reduce the potential for incidents involving the hazardous materials, shall include the following:</p> <ul style="list-style-type: none"> <li>▪ Refueling shall be conducted only with approved pumps, hoses, and nozzles;</li> <li>▪ Catch pans shall be placed under equipment to catch potential spills during servicing;</li> <li>▪ All disconnected hoses shall be placed in containers to collect residual fuel from the hose;</li> <li>▪ Vehicle engines shall be shut down during refueling;</li> <li>▪ No smoking, open flames, or welding shall be allowed in refueling or service areas;</li> <li>▪ Refueling shall be performed away from bodies of water to prevent contamination of water in the event of a leak or spill;</li> <li>▪ Service trucks shall be provided with fire extinguishers and spill containment equipment, such as absorbents;</li> <li>▪ Should a spill contaminate soil, the soil shall be put into containers and disposed of in accordance with local, State, and Federal regulations;</li> <li>▪ All containers used to store hazardous materials shall be inspected at least once per week for signs of leaking or failure. All maintenance and refueling areas shall be inspected monthly. Results of inspections shall be recorded in a logbook that would be maintained on site; and</li> <li>▪ The amount of hazardous materials used in project construction and operation shall be consistently kept at the lowest volumes needed.</li> </ul>	<b>LTS</b>

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
<p><b>Impact 4.7-4.</b> Sediment removal activities associated with the Proposed Project could create a significant hazard through upset and accident conditions involving the release hazardous materials into the environment.</p>	<p align="center"><b>SI</b></p>	<p>This impact is discussed in <b>Section 4.3</b>, Biological Resources, and is reduced to a less-than-significant level through implementation of <b>Mitigation Measures 4.3-4a</b> through <b>4.3-4d</b>.</p>	<p align="center"><b>LTS</b></p>
<p><b>4.8 HYDROLOGY AND WATER QUALITY</b></p>			
<p><b>Impact 4.8-1.</b> Construction activities may substantially degrade surface water and/or groundwater quality.</p>	<p align="center"><b>SI</b></p>	<p><b>Mitigation Measure 4.8-1.</b> CCWD shall comply with the SWRCB NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Permit). The SWRCB requires that all construction sites have adequate control measures to reduce the discharge of sediment and other pollutants to streams to ensure compliance with Section 303 of the Clean Water Act. To comply with the NPDES permit, the applicant shall file a Notice of Intent with the SWRCB and prepare a Storm Water Pollution Prevent Plan (SWPPP) prior to construction, which includes a detailed, site-specific listing of the potential sources of stormwater pollution; pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills) to include a description of the type and location of erosion and sediment control best management practices (BMPs) to be implemented at the project site, and a BMP monitoring and maintenance schedule to determine the amount of pollutants leaving the Proposed Project site. A copy of the SWPPP must be current and remain on the project site. Control measures are required prior to, and throughout, the rainy season. Water quality BMPs identified in the SWPPP shall include, but are not limited to, the following:</p> <ul style="list-style-type: none"> <li>▪ Temporary erosion control measures (such as silt fences, staked straw bales, and temporary revegetation) shall be employed for disturbed areas. No disturbed surfaces will be left without erosion control measures in place during the winter and spring months.</li> <li>▪ Sediment shall be retained onsite by the detention basin, onsite sediment traps, or other appropriate measures.</li> <li>▪ A spill prevention and countermeasure plan shall be developed which would identify proper storage, collection, and disposal measures for potential pollutants</li> </ul>	<p align="center"><b>LTS</b></p>

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		<p>(such as fuel, fertilizers, pesticides, etc.) used onsite. The plan would also require the proper storage, handling, use, and disposal of petroleum products.</p> <ul style="list-style-type: none"> <li>▪ Construction activities shall be scheduled to minimize land disturbance during peak runoff periods and to the immediate area required for construction. Soil conservation practices shall be completed during the fall or late winter to reduce erosion during spring runoff. Existing vegetation will be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction.</li> <li>▪ Surface water runoff shall be controlled by directing flowing water away from critical areas and by reducing runoff velocity. Diversion structures such as terraces, dikes, and ditches shall collect and direct runoff water around vulnerable areas to prepared drainage outlets. Surface roughening, berms, check dams, hay bales, or similar devices shall be used to reduce runoff velocity and erosion.</li> <li>▪ Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out. Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff losses and contamination of groundwater.</li> <li>▪ Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events.</li> <li>▪ Establish fuel and vehicle maintenance areas away from all drainage courses and design these areas to control runoff.</li> <li>▪ Disturbed areas shall be revegetated after completion of construction activities.</li> <li>▪ Provide sanitary facilities for construction workers</li> </ul>	
<p><b>Impact 4.8-2.</b> <b>The Proposed Project would change the water volume and/or pattern of seasonal flows in a manner that could result in a significant reduction in water supply downstream of the diversion for senior water right</b></p>	<p align="center"><b>SI</b></p>	<p><b>Mitigation Measure 4.8-2:</b> The District shall control the diversion on San Vicente Creek such that the flow bypassed during diversions from June 1 through October 1 meets the current permit term requirement of a wetted channel at the southwesterly border of Torello Ranch.</p>	<p align="center"><b>LTS</b></p>

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
<p><b>holders and a significant reduction in the available aquatic habitat or riparian habitat for native species of plants or animals.<sup>1</sup></b></p> <p><sup>1</sup> This impact is taken from the SWRCB's custom CEQA Checklist for analyzing water right applications, found online at <a href="http://www.waterboards.ca.gov/waterrights/">http://www.waterboards.ca.gov/waterrights/</a>. In this EIR, impacts to aquatic habitat and riparian vegetation are discussed and analyzed in <b>Section 4.2 Biological Resources</b>.</p>			
<p><b>Impact 4.8-3.</b> The Proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).</p>	LTS	None required	LTS
<p><b>Impact 4.8-4.</b> The Proposed Project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation; or substantially increase the rate or amount of runoff in a manner which would result in flooding on or off-site.</p>	LTS	None required	LTS

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
<p><b>Impact 4.8-5.</b> Development of the Proposed Project could place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map; place within a 100-year flood hazard area structures that would impede or redirect flood flows; or expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam or inundation by seiche, tsunami, or mudflow.</p>	LTS	None required	LTS
<p><b>Impact 4.8-6.</b> The Proposed Project in combination with future growth and development within the County and project vicinity would not result in cumulative impacts to hydrology and water quality.</p>	LTS	None required	LTS
<b>4.9 NOISE</b>			
<p><b>Impact 4.9-1.</b> Construction activities associated with Proposed Project have the potential to intermittently and temporarily generate noise levels significantly greater than existing ambient levels in the Proposed Project vicinity.</p>	SI	<p><b>Mitigation Measure 4.9-1.</b> Construction activities shall be limited to the hours of 7:00 am to 6:00 pm Monday through Friday and 9:00 am to 5:00 pm Saturday. Construction activities shall not be conducted on Sundays or holidays.</p> <p>In addition, the contractor shall implement the following BMPs to further reduce noise impact due to construction:</p> <ul style="list-style-type: none"> <li>▪ Stationary equipment and staging areas shall be located as far as practical from noise-sensitive receptors.</li> <li>▪ All construction vehicles or equipment, fixed or mobile, shall be equipped with</li> </ul>	LTS

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		<p>properly operating and maintained mufflers and acoustical shields or shrouds, in accordance with manufacturers' recommendations.</p> <ul style="list-style-type: none"> <li>▪ To the extent feasible, existing barrier features (structures) shall be used to block sound transmission between noise sources and noise sensitive land uses.</li> <li>▪ The general contractors for all construction and demolition activities shall provide a contact number for citizen complaints and a methodology for dealing with such complaints such as designating a noise disturbance coordinator. This noise disturbance coordinator shall receive all public complaints about construction-related noise and vibration, shall be responsible for determining the cause of the complaint, and shall implement any feasible measures to be taken to alleviate the problem. All complaints and resolution of complaints shall be reported to the County weekly.</li> </ul>	
<p><b>Impact 4.9-2.</b> Construction activities associated with the Proposed Project have the potential to intermittently and temporarily generate vibrations.</p>	<p align="center"><b>LTS</b></p>	<p align="center">None required</p>	<p align="center"><b>NI</b></p>
<p><b>Impact 4.9-3.</b> Operation of the Proposed Project has the potential to generate noise levels above existing ambient levels in the Proposed Project vicinity.</p>	<p align="center"><b>SI</b></p>	<p><b>Mitigation Measure 4.9-2.</b> Noise generated by the electric pump located at the new San Vicente POD shall be equipped with a noise-reducing shielding, so that noise generated by the pump does not to exceed the County's noise threshold of 55 CNEL, dbA at a distance of 50 feet.</p>	<p align="center"><b>LTS</b></p>

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# **SECTION 3.0**

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## PROJECT DESCRIPTION

## 3.0 PROJECT DESCRIPTION

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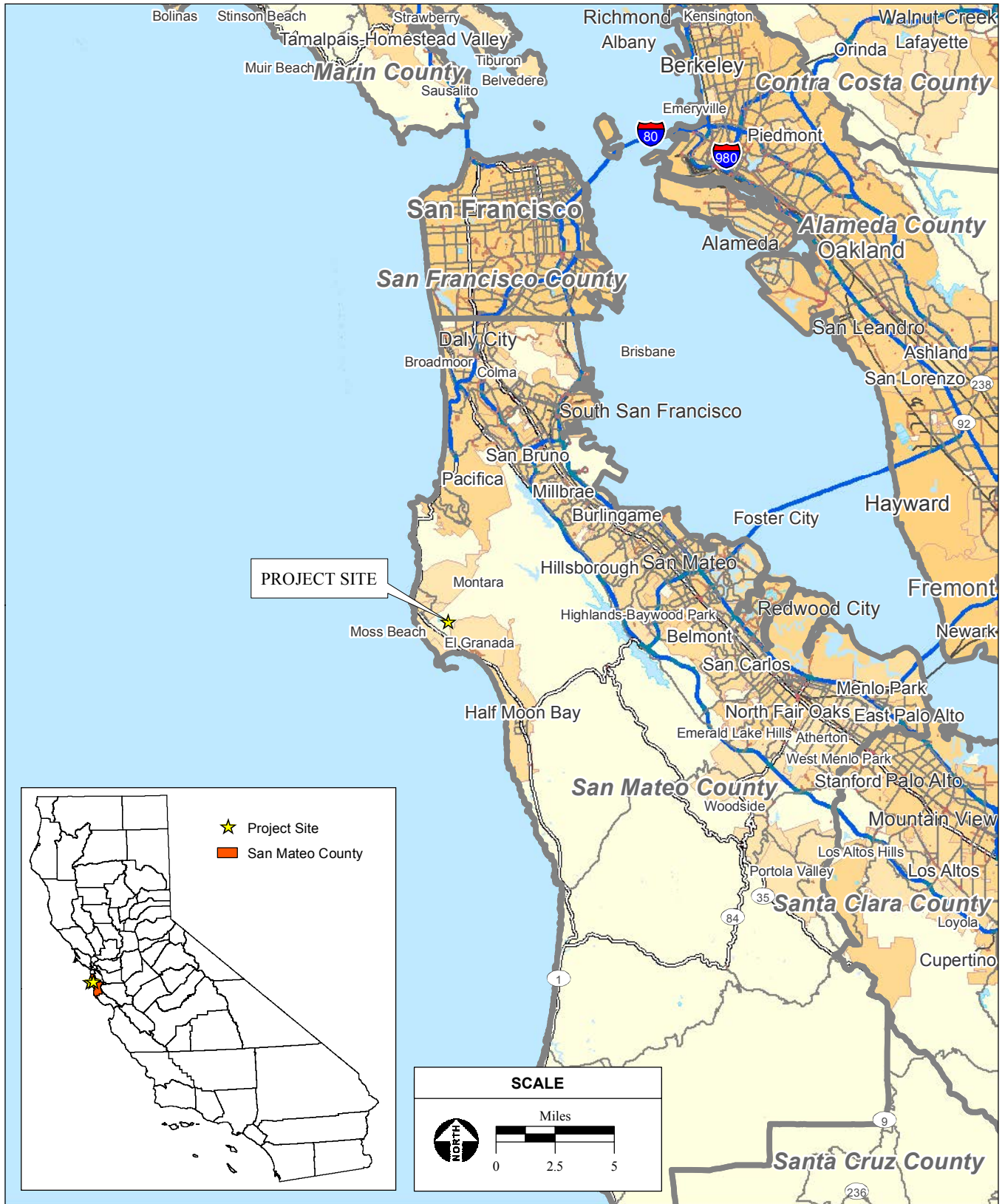
### 3.1 INTRODUCTION

Coastside County Water District (CCWD) provides water to customers within an approximately 14 square mile area along the California coast in San Mateo County. The CCWD service area contains the City of Half Moon Bay as well as unincorporated areas of San Mateo County including Miramar, Princeton by the Sea, and El Granada. CCWD currently serves a population of approximately 20,000 customers with water from four sources: 1) Denniston Creek; 2) wells in the vicinity of Pilarcitos Creek; 3) wells near Denniston Creek; and 4) imported water from the San Francisco Public Utilities Commission (SFPUC) (West Yost Associates, 2010).

CCWD is seeking approval from the State Water Resources Control Board (SWCRB) of a petition for extension of time for water right Permit 15882 (Application 22860). The approval of this extension of time would allow CCWD to complete the construction of a pipeline and infrastructure improvements to facilitate full beneficial use of authorized diversions under Permit 15882. This would increase the availability of and reliance on local water sources, thereby lessening dependence on imported water from the SFPUC. Permit 15882 allows for the direct diversion of up to 4.0 cubic feet per second (cfs) from both creeks during the period of January 1 to December 31 of each year. The permit provides that the quantity diverted from each creek shall not exceed 2.0 cfs. If the SWRCB grants this petition, CCWD would have until December 31, 2016 to complete construction of the proposed water collection system improvements and to beneficially use the water to the maximum extent authorized by Permit 15882.

Sediment removal occurs as part of the current operations of the Denniston Creek diversion; part of the Proposed Project would include expansion of the existing program to include sediment removal from Denniston Reservoir. The CEQA document prepared for this project will serve as the environmental document for the SWRCB decision on CCWD's petition for an extension of time for CCWD's construction of the infrastructure described herein, and for CCWD's expanded sediment removal program.

The project site is shown in **Figures 3-1** and **3-2**. The Proposed Project is located in the northern portion of the CCWD service area. The majority of the CCWD's service area is located along the coastal terrace between the Santa Cruz Mountains to the east, the Pacific Ocean to the west, the community of Princeton by the Sea to the north, and the City of Half Moon Bay to the south. Denniston Creek and the existing Denniston Reservoir are located northeast of the Half Moon Bay Airport on the inland side of U.S. Highway 1. The Denniston Creek watershed covers approximately 8,000 acres and discharges into Half Moon Bay, located approximately 1.2 miles south of the existing Denniston Reservoir (California Coastal

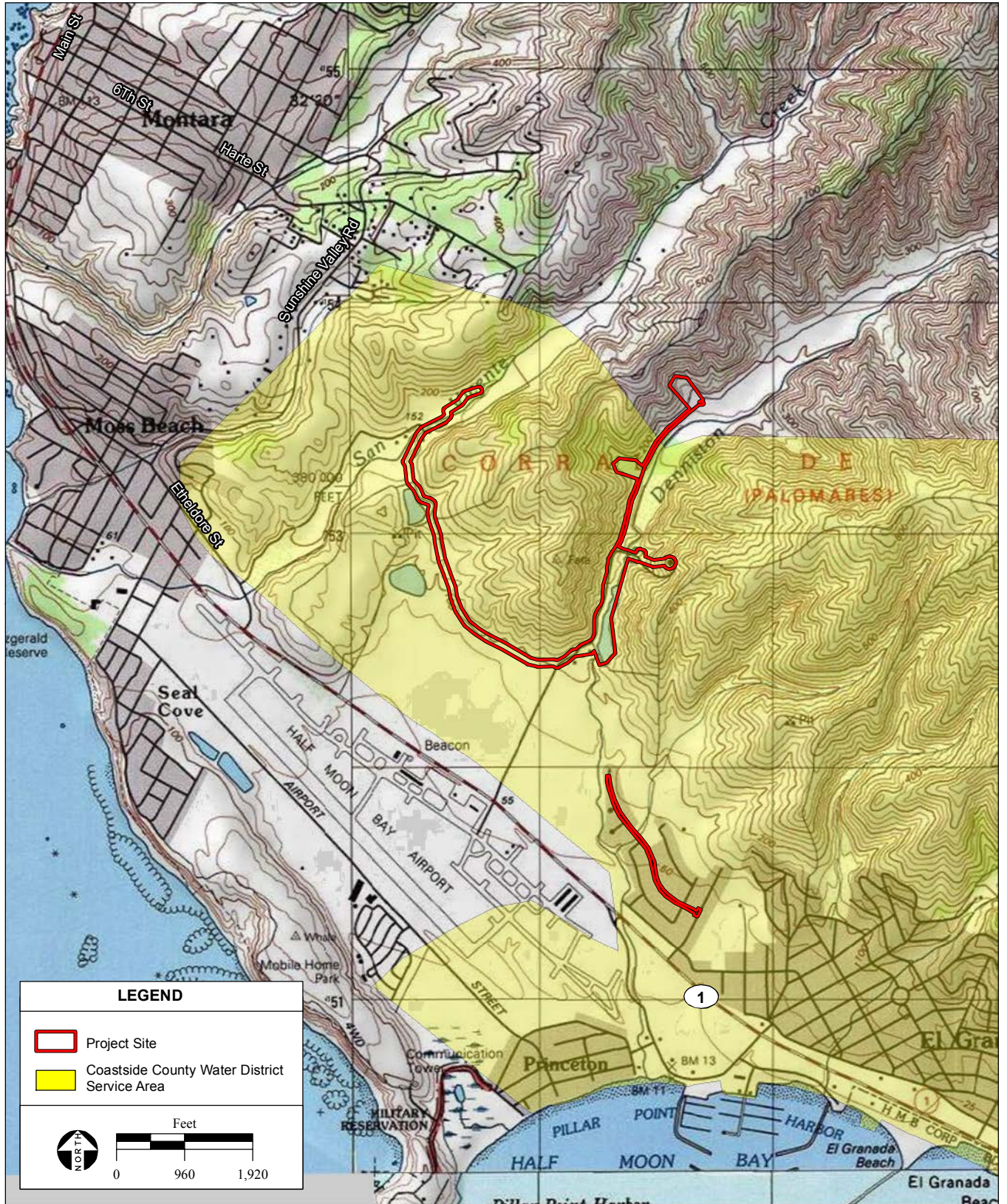


SOURCE: StreetMap North America, 2009; AES, 2013

CCWD Denniston/San Vicente Water Supply DEIR / 211525 ■

**Figure 3-1**  
Regional Location





SOURCE: "Montara Mountain, CA" USGS 7.5 Minute Topographic Quadrangle, T4S & 5S R5W & 6W, Unsectioned Area of Corral de Tierra, Mt. Diablo Baseline & Meridian; AES, 2013

CCWD Denniston/San Vicente Water Supply DEIR / 211525 ■

**Figure 3-2**  
Site and Vicinity

Commission, 2008). Denniston Reservoir serves as the existing Point of Diversion (POD) on Denniston Creek for the CCWD. This will not change under the Proposed Project.

The authorized POD on San Vicente Creek is located approximately 4,300 feet due north of Denniston Reservoir. The San Vicente Creek watershed covers approximately 1,170 acres and discharges into the Pacific Ocean within the boundaries of the Fitzgerald Marine Reserve.

Currently, the Denniston Creek Pump Station pumps untreated water from the Denniston POD to the Denniston Water Treatment Plant (WTP), which has a capacity to treat 1,000 gallons per minute (gpm) of water. From there, treated water is put into storage at the Denniston Tank and is gravity fed to the CCWD distribution system. Due to the hydraulic limitations addressed by the Proposed Project, the flow of treated water leaving the Denniston Tank is often limited to approximately 300 gpm.

The topography of the surrounding area consists of rolling hills transitioning into coastal plain. The current land uses within the two watersheds are primarily dominated by open space, recreation (hiking and equestrian), and agriculture.

## 3.2 PROJECT COMPONENTS

Project components analyzed in this Draft EIR include:

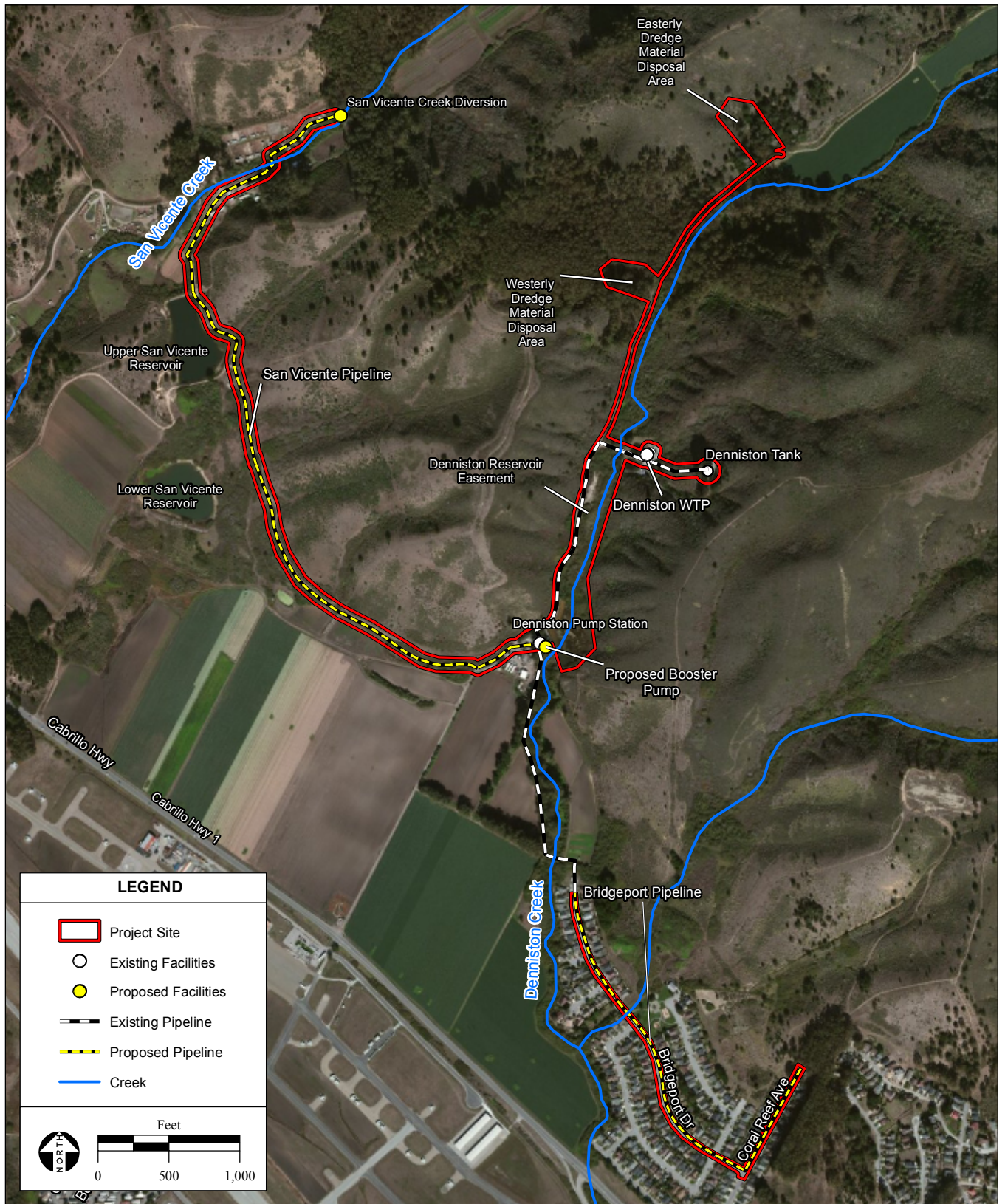
- 1) Water Right Permit 15882 – petition for extension of time;
- 2) New Diversion Structure and Pump Station – San Vicente Creek;
- 3) New and Upgraded Pipeline – between San Vicente Creek and Denniston Reservoir pump station (6,100 feet);
- 4) Denniston WTP – expand capacity up to 1,500 gpm;
- 5) New Booster Pump Station;
- 6) New Pipeline – along Bridgeport Drive (3,460 feet); and
- 7) Expanded sediment removal from the Denniston Reservoir.

Proposed Project components, including construction areas and the existing easements which would be used for the expanded sediment removal and disposal, are shown on **Figure 3-3**.

### 3.2.1 PETITION FOR EXTENSION OF TIME FOR WATER RIGHT PERMIT 15882

In the past, CCWD has been limited by water availability and treatment plant capacity, and has often been unable to utilize the full amount of water authorized for diversion under Permit 15882 when it is available (up to 2 cfs each from San Vicente and Denniston Creeks). The proposed infrastructure improvements described above will allow CCWD to increase diversions and use of water under this permit.





**Figure 3-3**  
Project Components

### 3.2.2 PROPOSED FACILITY IMPROVEMENTS

#### **Diversion Structure and Pump Station on San Vicente Creek**

The Proposed Project includes the construction of a permanent diversion structure at the location of the San Vicente Creek POD, which is currently an authorized POD in Permit 15882. The construction of the new diversion structure would occur adjacent to, and within, San Vicente Creek and would require the removal and trimming of minimal amounts of vegetation. The existing temporary diversion (shown in **Figure 4.3-2c: Photograph 11**) would be removed prior to construction of the permanent diversion infrastructure, and would be replaced by the new structure. It is anticipated that the design of the new POD, which is shown in **Figure 3-4**, would be similar to the existing structure but would be constructed of concrete and more permanent materials, to avoid erosion and downcutting of the channel.

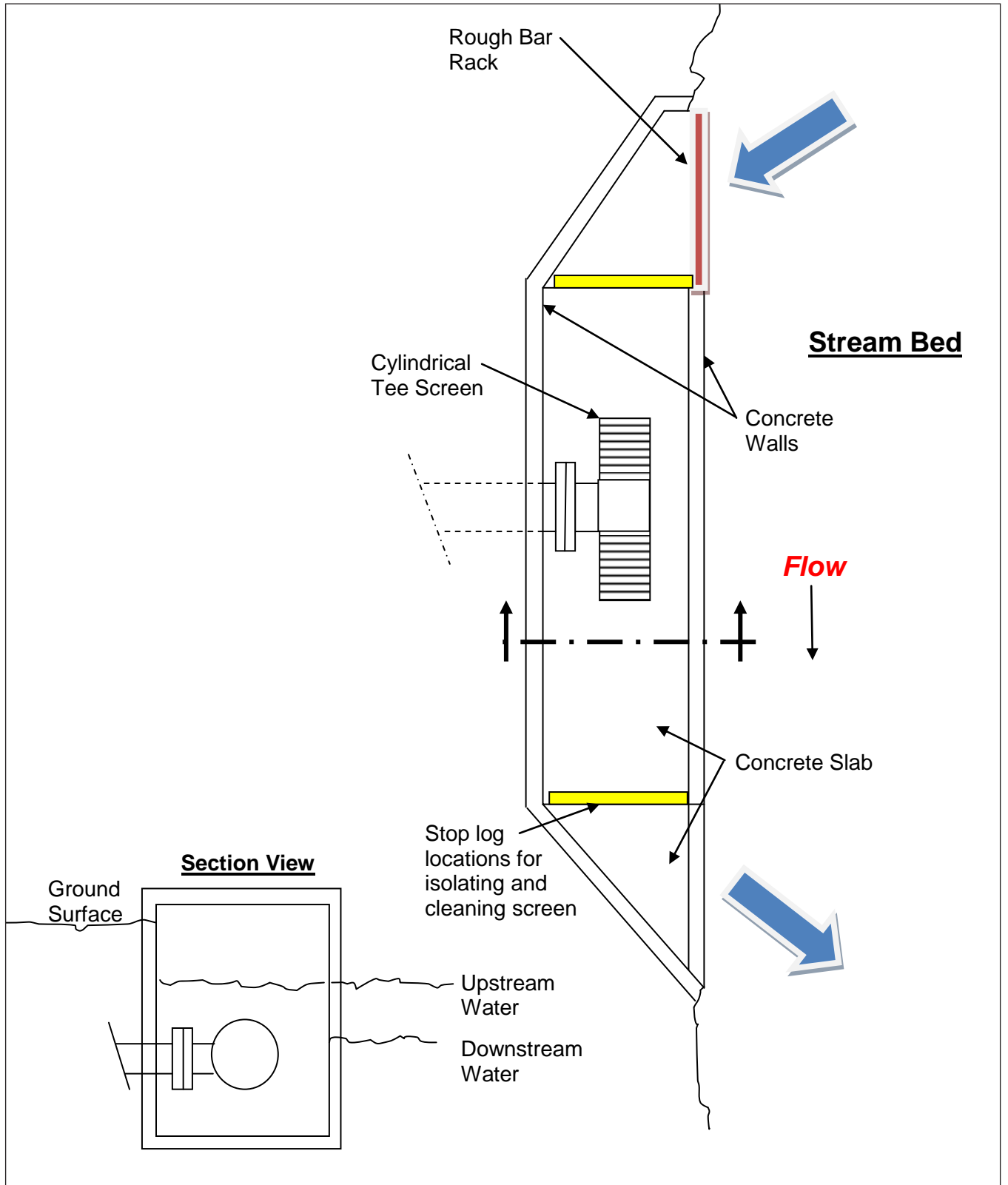
Water would be pumped from the diversion via the upgraded pipeline to the existing Denniston Pump Station and then to the Denniston WTP. The pump would only operate during the diversion season. Existing riparian vegetation would serve as a visual buffer by screening the pump from view and would also act as a noise buffer for adjacent properties.

#### **New and Upgraded Pipeline to Denniston Creek Pump Station**

Water diverted from San Vicente Creek would be conveyed via 6,100 feet of upgraded and new piping to the existing Denniston Creek Pump Station, which is located adjacent to the Denniston Reservoir. The proposed pipeline would be installed within existing CCWD easements. The proposed pipeline route is oriented along the toe of the slope that separates the San Vicente Creek and Denniston Creek watersheds at the coastal plain transition, primarily along or within existing farm roads. This proposed alignment is similar to the alignment of the pipeline that CCWD has used in the past to convey water from San Vicente Creek to the Denniston pump station and WTP. The existing portion of the pipeline from the POD on San Vicente Creek to the upper San Vicente Reservoir would be replaced and a new underground pipeline would be installed from that point to the existing pump station at Denniston Reservoir.

The pipeline would be installed using open cut trenching, which requires removal of vegetation, excavation of the trench, installation of the pipeline, backfill and compaction, and re-grading where necessary. Where feasible, native material generated during trenching would be retained for backfill. Excavated materials that cannot be utilized for backfill would be hauled offsite to appropriate disposal facilities, and any additional backfill material needed would be imported.

Depending on site conditions, trenches would be secured at the end of each workday by covering with steel plates, filling with backfill material, or installing barricades to restrict access.



**Figure 3-4**  
Screened Intake Structure with Cylindrical Screen



To minimize runoff and erosion during construction, work would be performed during the dry season (generally March 15 through October 15) and standard erosion control features and best management practices (BMPs) would be utilized during construction. See **Section 4.8**, Hydrology and Water Quality, for further discussion of BMPs and erosion control features.

#### **Denniston WTP Capacity Increase**

The California Department of Public Health (CDPH) has a system of rating water treatment plants to ensure the level of service is safe and reliable; CDPH has rated the Denniston WTP at a capacity of 1,040 gpm. In order to facilitate the treatment of water from San Vicente and Denniston Creeks, the CCWD will either request a re-rating of the plant or upgrade the existing infrastructure to expand the capacity of the plant. It is anticipated that re-rating the plant based on a maximum filtration rate of 3.0 gpm per square foot would allow the Denniston WTP to operate at a peak capacity of 1,440 gpm (3.21 cfs) during peak water availability. Alternatively, moderate upgrades to the plant would increase the maximum rated capacity to 1,500 gpm (3.34 cfs). Either of these alternatives would allow the CCWD to divert water from San Vicente and Denniston Creeks under Permit 15882 at rates up to the maximum authorized rates of 2 cfs.

#### **New Booster Pump Station**

Water treated at the Denniston WTP is stored in an existing 1.5 million gallon (MG) tank (Denniston Tank) located on a hillside approximately 170 feet above the Denniston WTP. There is a relatively flat hydraulic grade line between the Denniston Tank and the Carter Hill Tank; as a result of this grade line, gravity flow from the Denniston Tank to the Carter Hill Tank currently is limited to approximately 300 gpm (0.67 cfs) (CCWD, 2010). In order to increase the flow from Denniston WTP into the CCWD distribution system, pumping will be required.

As part of the Proposed Project, CCWD proposes to install a Booster Pump Station adjacent to the existing Denniston Pump Station on CCWD property (CCWD, 2010). The Booster Pump Station will increase maximum flow rates from the Denniston Tank to the Carter Hill Tank, and, as a result, will allow the Denniston WTP to operate at full capacity. The Booster Pump Station will be designed for up to three vertical, electric turbine pumps, with two pumps installed initially and room for a third as needed. The duty condition of each pump will be 600 gpm.

#### **New Pipelines along Bridgeport Drive**

Following the completion of the El Granada Pipeline Replacement Project in 2008, CCWD's main north-south transmission pipeline has sufficient capacity to convey the maximum output of the Denniston WTP south into the rest of CCWD's distribution system. However, the larger diameter El Granada Pipeline does not extend all the way to the Denniston WTP. The residential distribution network of 8-inch and 6-inch pipelines along Bridgeport Drive in El

Granada, which currently conveys Denniston WTP treated water to the northern end of the El Granada Pipeline, creates a flow-limiting bottleneck that must be eliminated to allow the Denniston WTP to operate at full capacity. The Proposed Project includes installation of 3,460 feet of new transmission pipeline along Bridgeport Drive and Coral Reef Avenue, connecting to the 12-inch main at the intersection of Coral Reef and Doelger Drive (see **Figure 3-3**). All new pipelines will be installed within existing paved roadways.

To complete pipeline construction within public rights-of-way, CCWD must obtain an Encroachment Permit from the San Mateo County Department of Public Works. CCWD must comply with all conditions of the permit, including the provisions for the protection of traffic circulation in the area. These include, but are not limited to: barricades, warning lights, and flaggers. All work shall be planned and carried out so that there will be the least possible inconvenience to the traveling public. CCWD will also devise a traffic management plan and file it with the appropriate San Mateo County authority and will notify any affected homeowners in advance of any road work or service disruptions.

#### **3.2.3 OPERATION AND MAINTENANCE ACTIVITIES**

CCWD currently operates an annual maintenance sediment removal program at Denniston Reservoir under a Streambed Alteration Agreement (SAA) with the California Department of Fish and Wildlife (CDFW). This ongoing SAA authorized a onetime removal of approximately 800 cubic yards (cy) of sediment during the first year, with disposal in the existing approved disposal area in a eucalyptus grove east of the reservoir. The SAA also authorizes the removal of 400 cy of material annually as part of the CCWD's ongoing POD maintenance at the Denniston Reservoir; in 2013, CCWD was in the fifth year of this program. Under the Proposed Project, CCWD would expand the area and scope of the ongoing sediment removal program. CCWD's easement for the reservoir encompasses over three surface acres, which is approximately the size of the original reservoir built in the 1930's. The current SAA covers the annual sediment removal on about 0.5 acres immediately adjacent to the dam. While this meets the immediate needs of the diversion, it is not an optimal program for the ongoing maintenance of the reservoir over time.

CCWD proposes a larger sediment removal maintenance plan, which would involve clearing a significant portion of the sediment-filled, overgrown area of the original reservoir. This expanded reservoir management plan would include the restoration of a creek channel within the existing riparian area and would benefit the local red-legged frog population while providing assurance for the CCWD and the farmer that uses the reservoir that their POD will have a more sustainable and higher quality water source. The restored capacity of the reservoir would be approximately 30 acre feet (AF), which is less than the maximum 30 day combined diversions by CCWD and the farmer that uses this reservoir. This annual maintenance program would

also help to ensure the continued capture of sediment at the reservoir and prevent it from being conveyed downstream to Half Moon Bay Harbor.

CCWD currently has easements for the two existing dredge material disposal areas. The expanded sediment removal program would require either an amendment to the existing SAA or a new SAA between CCWD and CDFW and is part of the Proposed Project.

Ongoing operational activities associated with the proposed new facilities may include routine maintenance of the San Vicente pipeline, maintenance and/or possible future dredging of the San Vicente diversion structure, although the latter is not currently anticipated, maintenance of the pump station at San Vicente Creek, maintenance at the proposed Booster Pump Station, and routine maintenance of pipelines along Bridgeport Drive.

#### **3.2.4 PROJECT OBJECTIVES**

The Proposed Project would meet the following objectives:

- Improve the overall reliability of the CCWD water supply system;
- Increase usage of local water supplies to improve the balance between imported and local sources and reduce dependence on imported water;
- Complete the construction of infrastructure originally anticipated in existing water right Permit 15882; and
- Maintain Denniston Reservoir closer to its original size and capacity on an ongoing basis.

### **3.3 PROJECT BACKGROUND AND NEED**

#### **3.3.1 CURRENT CCWD WATER SUPPLY**

The existing CCWD system consists of two water treatment plants, 17 miles of transmission pipeline, 83 miles of distribution pipeline, several water storage tanks and supporting equipment and facilities. CCWD has implemented, and is continuing to implement, capital projects to improve efficiency and reliability and to ensure that there will be sufficient treatment capacity to allow full use of local groundwater, local surface water, and purchased water. CCWD approved and completed the upgrade of the El Granada Transmission Pipeline, eliminating a significant hydraulic bottleneck between the CCWD's El Granda Tank No. 1 and the Nunes WTP. This project was a necessary step to facilitate the exchange of local water and purchased water for utilization throughout CCWD's service area.

CCWD currently receives its water supply from four sources:

- 1) the diversion at Denniston Creek;
- 2) wells adjacent to Pilarcitos Creek;
- 3) wells near Denniston Creek; and
- 4) SFPUC water from Pilarcitos Lake and Crystal Springs Reservoir.

A table depicting historical supply reliability of the existing CCWD sources is shown in **Table 3-1**.

**TABLE 3-1**  
HISTORICAL SUPPLY RELIABILITY, AFY

Supply	Average/ Normal Year	Single Dry Water Year	Multiple Dry Water Years		
			Year 1	Year 2	Year 3
	2002	1977	1988	1989	1990
SFPUC Supplies	2,455	2,032	2,032	1,765	1,765
Pilarcitos Creek Wells	150	75	75	0	0
Denniston Surface Water	610	305	305	122	0
San Vicente Surface Water	0	0	0	0	0
Denniston Wells in Airport Terrace Aquifer	120	60	60	24	0
Total	3,335	2,472	2,472	1,911	1,765
Percent of Average/Normal Year, %	100	74	74	57	53

Source: Adapted from West Yost Associates, 2010

### SFPUC Supplies

In dry water years, the amount of SFPUC water available to the District may decrease, as explained further below. For a single dry water year or multiple dry water years, it is important that the CCWD has appropriate infrastructure to adequately utilize local water sources under its existing water right (Permit 15882).

The CCWD purchases water from SFPUC under terms of the 2009 Water Supply Agreement between SFPUC and its wholesale customers, and is currently entitled to 800 MG annually (2,455 AF), except in drought years when mandatory water rationing is in effect. SFPUC's water supply is predominately water runoff and snowmelt from the Sierra Nevada delivered from the Hetch Hetchy aqueducts. The SFPUC also treats water at its local facilities in Alameda and San Mateo Counties. The CCWD purchases water from two sources owned and operated by the SFPUC: Pilarcitos Lake and the Upper Crystal Springs Reservoir. Pilarcitos Lake consists of water collected from local runoff from the surrounding Peninsula watershed. Upper Crystal Springs Reservoir is supplied by local runoff from the surrounding Peninsula watershed and from imported water supplies from Hetch Hetchy.

## CCWD Local Sources

The local water sources utilized by CCWD include surface water and groundwater, which CCWD operates in a conjunctive-use manner. In 2010, approximately 88 percent of the annual CCWD-wide demand was met by water purchased from SFPUC, with the remaining 12 percent produced locally from ground and surface water (CCWD, 2012). The amount of water available from SFPUC has recently been capped until 2018 and is not expected to increase in the future, thereby increasing the need for CCWD to fully utilize and integrate all local water sources. The projected future supplies of the District that will supplement the Proposed Project diversions are depicted in **Table 3-2**.

**TABLE 3-2**  
OTHER FUTURE WATER SUPPLIES, AFY

Supply Source	Planned Future Water Supplies (2035)
SFPUC Supplies	2,269
Pilarcitos Creek Wells	150
Denniston Wells in Airport Terrace Aquifer	120
<b>Total</b>	<b>3,633</b>

Source: Adapted from West Yost Associates, 2010

San Mateo County and the City of Half Moon Bay have both adopted growth control measures, which have reduced the overall rate of new development within CCWD's service area. These growth restrictions, in conjunction with Local Coastal Program (LCP) policies, require phasing of utility infrastructure, including water production, treatment, and transmission facilities, to correspond to planned development rate in the LCPs. The slow but steady growth planned for in the LCP, in combination with the escalating costs of importing water from SFPUC, require CCWD to fully utilize local supplies to ensure that CCWD can meet its current, as well as its anticipated long-term, water demands for the authorized growth. The use of local supplies would reduce the dependence on imported water but would not change the overall demand for water by CCWD.

### ***Denniston Creek Supplies***

In 1973, CCWD completed construction of the Denniston Project, which included the Denniston Pump Station, the Denniston WTP, the Denniston water storage tank, and a pipeline connecting the storage tank to the main distribution system.

CCWD completed modifications to the Denniston storage tank in 2009 to remove the chlorine contact time limitations that had restricted WTP capacity, and in 2013 CCWD completed improvements to the Denniston WTP. The upgrades at the Denniston WTP allow the use of generally lower quality raw water from the existing diversions as well as the groundwater from the

Denniston well field. These improvements, when combined with other recent improvements such as the El Granada Pipeline, will improve the reliability and security of CCWD's water supply.

### ***Pilarcitos Wells***

Wells near Pilarcitos Creek are located between Pilarcitos Lake and Highway 92, and are owned and operated by CCWD. Operation of these wells is limited by CCWD's water rights license to the period of November 1 through March 31 of each year. The maximum pumping rate allowed under this license is 673 gpm and the maximum allowed annual production is 117 MG per year (359 acre-feet per year [AFY]). Average year supplies from these wells are anticipated to be approximately 48 to 50 MG per year (about 150 AFY) (West Yost Associates, 2010). Because the production of these wells is dependent upon the surface flow in from Pilarcitos Creek, their yield is extremely low during drought years (West Yost Associates, 2010).

### ***Denniston Wells***

CCWD also has a wellfield in the Airport Terrace, a subbasin of the larger Airport Subbasin Aquifer. CCWD pumps approximately 120 AFY (23.4 percent) of the water that is withdrawn from the aquifer annually (West Yost Associates, 2010). This aquifer is recharged predominantly by Denniston Creek and precipitation, and the unique hydrogeology of the aquifer allows it to be recharged quickly following dry years (West Yost Associates, 2010 and Balance Hydrologics, 2014). Currently, CCWD operates wells in this wellfield to augment the Denniston Creek diversions, and the Denniston wells are not pumped when surface water from Denniston Creek is unavailable (West Yost Associates, 2010).

## **3.3.2 EXISTING WATER RIGHTS**

CCWD filed water-right Application 22680 with the State Water Rights Board (SWRB) in 1966. In 1969, the SWRCB, the successor to the SWRB, issued Water Right Permit 15882. The permit authorizes CCWD to divert up to 2.0 cfs each from Denniston and San Vicente Creeks. The proposed facilities listed in the original application include:

- A permanent diversion facility on San Vicente Creek consisting of a pump station and a subsurface pipeline from the San Vicente diversion to Denniston Pump Station (components of the Proposed Project);
- A pump station at the western end of Denniston Reservoir (in place);
- A WTP located south of this reservoir (pretreatment improvements completed in 2013 will address the water quality issues that have limited the ability to fully utilize the approved surface water right in the past), and
- A treated water pipeline extending from the Denniston WTP to the water distribution system further south (in place).

Permit 15882 originally specified a 1971 deadline for completing proposed improvements, and a 1972 deadline for putting water to beneficial use. Since these dates, CCWD has filed several petitions for extension of time. Delays to complete construction of this infrastructure were unavoidable, as the recent modifications to the Denniston WTP demonstrate. The upgrades to the Denniston WTP were required to address Department of Health Services' restrictions based on raw water turbidity. Likewise, construction of the El Granada Pipeline was delayed due to appeals to the California Coastal Commission. The most recent petition for an extension of time was filed in June 2004. The SWRCB issued a public notice for this extension on November 19, 2009. In response to this notice, the National Park Service (NPS) filed a letter dated December 22, 2009 and the CDFW filed a memorandum dated January 14, 2010. The SWRCB has determined that neither of the documents met the requirements for a valid protest.

In 1973, CCWD completed construction of the initial Denniston Project, which included the Denniston pump station, the Denniston WTP, the Denniston water storage tank, and a pipeline connecting the storage tank to the main distribution system. The Denniston Creek diversion has been utilized virtually continuously by CCWD with up to 1.9 cfs being diverted at various times of the year. Historic usage of the diversion on San Vicente Creek by the CCWD has been limited to some domestic use in the 1980's, when a temporary mostly above-ground pipeline from Upper San Vicente Reservoir to the Denniston Creek pumping station was installed and used. This practice has been limited due to water quality concerns and the treatment limitations at the Denniston WTP. The CCWD has implemented upgrades to the Denniston WTP which will facilitate the use of surface water from either creek, as described below. In addition, after implementation of the Proposed Project, the capacity of Denniston WTP will be increased to a maximum of 1,500 gpm (3.34 cfs).

In a letter dated October 13, 2010, the SWRCB informed CCWD that a CEQA document would have to be prepared to evaluate the impacts of the potential increased amounts of water that may be diverted if the petition for the extension of time is approved. CCWD has decided to prepare this Draft EIR, which addresses the elements of the required project infrastructure as well as the petition for the extension of time.

#### **3.3.3 CURRENT DIVERSIONS FROM DENNISTON AND SAN VICENTE CREEKS**

Denniston Reservoir, which was built by local farmers in the early 1900s, functions today as the diversion on Denniston Creek from which water is pumped to the Denniston WTP. This reservoir also serves the irrigation needs of a local farmer. The Denniston Creek diversion has been historically utilized since the original water rights permit was issued, with up to 1.9 cfs being diverted at various times of the year with varying annual totals. This 1.9 cfs diversion by the District is part of the environmental baseline as analyzed herein.

Though the current permit also authorizes diversion of up to 2.0 cfs per year from San Vicente Creek, historic usage of the diversion on San Vicente Creek by the CCWD was limited to some domestic use in the 1980's, when a temporary, mostly above-ground pipeline extending from Upper San Vicente Reservoir to the Denniston Creek pumping station was installed and used. This practice was limited due to water quality concerns and the then-existing treatment limitations at the Denniston WTP. The existing diversion on San Vicente Creek is used by local farmers who store water in both Upper and Lower San Vicente Reservoirs for irrigation. No diversions by CCWD on San Vicente Creek are part of the environmental baseline. The new diversion structure would maintain water supplies for both CCWD and the farmers.

#### 3.3.4 DREDGING AT DENNISTON RESERVOIR

Historically, Denniston Reservoir had more storage capacity and a larger area of open water than it does today (TRC Essex, 2006). Decades of sedimentation from Denniston Creek, the subsequent establishment of tule (*Scirpus californicus*) dominant vegetation cover, and the lack of a consistent maintenance plan to dredge the reservoir have greatly reduced the storage capacity of the reservoir, converting approximately 1,100 linear feet of open water habitat to a choked monoculture of dense tule. Absent this reservoir on Denniston Creek, this sediment that is currently trapped would be transported to Half Moon Bay Harbor and would increase the dredging needs there.

In 1982, the CCWD undertook an approximate 20,000 cy dredging and vegetation removal project; however, the CCWD has not completed another dredging project of the same magnitude since (TRC Essex, 2006). Denniston Reservoir is currently maintained by CCWD through annual dredging activities under a SAA with CDFW for sediment removal in the immediate vicinity of the existing Dam (SAA #1600-2007-0480-3). The ongoing SAA authorized a onetime removal of about 800 cy of sediment during the first year, with disposal in one of the existing approved disposal areas in the eucalyptus grove north of the reservoir. The SAA also authorizes the removal of up to 400 cy of material annually as part of the CCWD's ongoing diversion point maintenance at Denniston Reservoir. All dredged material is transported to existing disposal sites approximately one half mile up-canyon from Denniston Reservoir (shown in **Figure 4.3-2b: Photograph 11**). The District has removed the maximum amount of sediment allowed under this agreement each year. The agreement expires in 2014.

#### 3.3.5 PURPOSE AND NEED

The District currently imports the majority of its water from SFPUC; this transport of water is energy-intensive and could be unreliable in the event of an earthquake or drought. In addition, SFPUC water is expensive and creates a financial burden on the District's rate payers. Finally,



the amount of water available from SFPUC has been capped until 2018 and is not expected to increase in the future, thereby increasing the need for CCWD to fully utilize and integrate all local water sources. The Proposed Project will allow the District to rely more fully on a key source of local water, with the goals of reducing the cost of the water it produces and increasing the reliability of its water sources. In the event of drought or earthquake, the District may be forced to reduce or eliminate its withdrawal from SFPUC until normal conditions resume. By having key infrastructure in place to utilize local sources under existing water right Permit 15882, the District and its customers will be protected in the event of disruptions in the supply of imported water.

## 3.4 REGULATORY REQUIREMENTS, PERMITS AND APPROVALS

As part of the implementation of the Proposed Project, the following permits and approvals may be necessary:

### Local Agencies

- CCWD approval of the Project
- CCWD adoption of this Draft EIR under CEQA.
- CCWD adoption of a Mitigation Monitoring and Reporting Plan (MMRP) that incorporates the mitigation measures identified in this document.
- County of San Mateo Coastal Development Permit.

### State Agencies

- CDFW SAA for construction of the diversion at San Vicente Creek.
- Possible CDFW long-term maintenance agreement for the ongoing operations of the diversion at San Vicente Creek.
- Revised long-term maintenance agreement with CDFW for the operations at Denniston reservoir.
- SWRCB approval of the petition for an extension of time for water right Permit 15882.
- RWQCB Clean Water Act (CWA) Section 401 Water Quality Certification.
- RWQCB CWA Section 402 Construction NPDES Storm Water Pollution Prevention Plan (SWPPP).

### Federal Agencies

- US Army Corps of Engineers (USACE) CWA Section 404 Permit for construction of the diversion at San Vicente Creek.

### 3.5 IMPLEMENTATION SCHEDULE

Implementation of the Proposed Project would occur during the dry season (generally March 15 through October 15). Construction for the San Vicente POD would begin with the installation of the new permanent diversion structure and conclude with the completion of the pipeline. The proposed Booster Pump Station, Denniston WTP capacity increases, and Bridgeport Pipelines can occur simultaneously or in phases, as long as construction occurs within the dry season (March 15 through October 15).

Annual dredging would be performed in September and/or October of each year or as otherwise stipulated in the SAA. The integrated use of these additional local surface waters into the overall water used by CCWD would be on an ongoing basis.

# **SECTION 4.0**

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## **ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION**

## **4.0 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION**

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**Section 4.0** of this Draft EIR contains individual sections that describe the environmental impacts that have the potential to occur as a result of the implementation of the Proposed Project. Each section describes the existing setting and background information necessary to help the reader understand the conditions that would cause an impact to occur. In addition, each section includes a description of how an impact is determined to be significant or not significant. Finally, the individual sections recommend mitigation measures to reduce significant impacts.

The impact analysis has been limited to those environmental resources determined in the Initial Study for the Proposed Project to contain potentially significant impacts. The following issue areas are addressed in **Section 4.0**:

- Section 4.1, Aesthetics and Visual Resources**
- Section 4.2, Air Quality**
- Section 4.3, Biological Resources**
- Section 4.4, Cultural and Paleontological Resources**
- Section 4.5, Geology and Soils**
- Section 4.6, Greenhouse Gas Emissions**
- Section 4.7, Hazards and Hazardous Materials**
- Section 4.8, Hydrology and Water Quality**
- Section 4.9, Noise**

## 4.1 AESTHETICS AND VISUAL RESOURCES

### 4.1.1 INTRODUCTION

This section addresses the visual characteristics of the existing site, and potential impacts to visual resources resulting from development of the Proposed Project. Following an overview of the existing setting in **Section 4.1.2** and the relevant federal, State, and local regulations in **Section 4.1.3**, project-related impacts and recommended mitigation measures are presented in **Section 4.1.4**.

### 4.1.2 ENVIRONMENTAL SETTING

#### Regional Characteristics

San Mateo County lies east of the Santa Cruz Mountain Range, and west of the generally level San Francisco Bay plain. Encompassing 455 square-miles of land with varied geographic settings ranging from redwood forests to hills, mountain ranges, agricultural land, scenic wetlands, tidal marshes, creeks, and beaches, San Mateo County provides plentiful scenic vistas with high visual quality. Urban areas within San Mateo County benefit from scenic views of the San Francisco Bay as well as surrounding hilly landscapes and wooded areas. This project site is located on a coastal plain near the Half Moon Bay Airport with views of Pillar Point, the Pacific Ocean, and Half Moon Bay Harbor.

#### Local Characteristics

The project site is within unincorporated, rural land in San Mateo County. The project area is currently composed of two separate land use types: the first is undeveloped, open space used for recreational and agricultural purposes near the San Vicente and Denniston points of diversion (PODs); the second is the existing road network within a residential neighborhood of the census-designated place El Granada, California. Scenic, coastal Highway 1 (Cabrillo Highway) wraps around the southern and western borders of the site, providing access to nearby towns including El Granada, approximately two miles southeast, Moss Beach, approximately one mile west, and Montara, approximately 1.5 miles northwest of the project site (Caltrans, 2007). In addition to being located less than two miles inland from the coastline, the project site is also surrounded by water sources Denniston Creek to the east, the on-stream Denniston Reservoir, and San Vicente Creek to the west. According to the San Mateo County General Plan, the site lies within a county-designated scenic corridor (San Mateo County, 1986).

Developments on or adjacent to the project site include the existing POD on San Vicente Creek located approximately 4,300 feet north of the Denniston Reservoir, active agricultural production fields to the south, east, and west, an equestrian facility to the immediate northwest of the POD

on San Vicente Creek, residential homes along the proposed Bridgeport Drive pipeline upgrade, and the Half Moon Bay Airport located 0.5 miles southwest on the coast side of Highway 1. Onsite and surrounding land uses are consistent with the generally rural setting of the area. The National Park Service (NPS) has purchased lands directly adjacent to the project site to the north. These lands have become part of the Golden Gate National Recreation Area (GGNRA), providing the public with opportunities for hiking, biking, and other recreational activities.

Neither of the PODs on Denniston Creek or San Vicente Creek is visible from Highway 1 or existing developed County roads. Likewise, the dredge material disposal areas are not visible from Highway 1 or existing developed County roads, as they are further up the Denniston Creek canyon and shielded from view by surrounding eucalyptus groves.

### Site Characteristics

The site east of Highway 1 provides views of mountainous landscapes, coastal vistas, creeks, and surrounding riparian areas. The project site contains riparian corridors, coastal scrub, eucalyptus groves, open grassland areas, reservoirs, agricultural field and human development associated with agricultural use, the adjacent equestrian facility, and residential development in the El Granada area at the lower end of the Bridgeport Pipeline improvements. When viewed from Cabrillo Highway, only vegetation surrounding the project site is visible. As viewed from upslope on the hills adjacent to and east of the project site, Denniston Reservoir and the existing unpaved farm road where the pipeline is proposed to be constructed are visible. When viewed from the neighborhood, the existing and proposed pipelines are underground below Bridgeport Drive.

### 4.1.3 REGULATORY SETTING

#### Local

##### *San Mateo County General Plan*

The project site is located in an unincorporated area of San Mateo County and is therefore generally subject to the regulations of the County. The following goals and policies for aesthetics and visual resources are contained within the San Mateo County General Plan (1986).

#### *Visual Quality*

##### 4.1 Protection of Visual Quality

- Encourage positive visual quality for all development and minimize adverse visual impacts.

##### 4.2 Protection of Shorelines

- Protect and enhance the visual quality of and from shorelines of bodies of water including lakes, reservoirs, streams, bays, ocean, and sloughs.
- Maximize the preservation of significant public ocean views.

#### 4.3 Protection of Vegetation

- Minimize the removal of visually significant trees and vegetation to accommodate structural development.

#### 4.4 Appearance of Rural and Urban Development

- Promote aesthetically pleasing development in rural and urban areas.

##### 4.21 Scenic Corridors

- Protect and enhance the visual quality of scenic corridors by managing the location and appearance of structural development.

##### 4.26 Water Bodies

- Allow for development of approved dams and impoundments and stream clearance operations.
- Discourage structures which would adversely impact the appearance of a stream and associated riparian habitat.
- Discourage the alteration of streams and other natural drainage systems which would affect their appearance, reduce underground water recharge, or cause drainage, erosion or flooding problems.

##### 4.30 Public Utilities

- Encourage the placement of new and existing public utility lines underground.

### ***San Mateo County Local Coastal Program***

The following goals and policies for aesthetics and visual resources are contained within the San Mateo County Local Coastal Program (LCP).

### ***Natural Features – Landforms***

#### 8.6 Streams, Wetlands, and Estuaries

- Set back development from the edge of streams and other natural waterways a sufficient distance to preserve visual character of the waterway.
- Prohibit structural development which will adversely affect the visual quality of perennial streams and associated riparian habitat, except for those permitted by Sensitive Habitats Component Policies.
- Retain the open natural visual appearance of estuaries and their surrounding beaches.

- Retain wetlands intact except for public access ways designed to respect the visual and ecological fragility of the area and adjacent land.

#### 4.1.4 IMPACT ANALYSIS

##### Methodology

Visual impacts are also analyzed through an examination of views and/or viewsheds. Viewsheds refer to the visual qualities of a geographical area that are defined by the horizon, topography, and other natural features that give an area its visual boundary and context. Public views are those which can be seen from vantage points that are publicly accessible, such as streets, freeways, parks, and vista points. These views are generally available to a greater number of persons than are private views. Private views are those which can be seen from vantage points located on private property. Private views are not considered to be impacted when interrupted by land uses on adjacent lands, particularly if the land use complies with the zoning and design guidelines applicable to the site. Viewshed impacts are typically characterized by the loss and/or obstruction of existing scenic vistas or other major views in the vicinity of the project site which are accessible to the general public.

Light and glare impacts are analyzed by considering the qualitative aesthetic characteristics of the existing nighttime lighting and daytime glare environments on the site and the modifications the Proposed Project would make to those environments.

Visual site characteristics and viewsheds were assessed during visits to the project site on March 11, May 9, 18, and 19, and July 19 of 2011, as well as November 13, 2013.

##### Thresholds of Significance

According to *CEQA Guidelines*, the Proposed Project could potentially have a significant impact on visual resources if it were to result in one or more of the following:

- have a substantial adverse effect on a scenic vista;
- substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- substantially degrade the existing visual character or quality of the site and its surroundings; or
- create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

##### Impacts and Mitigation Measures

###### IMPACT 4.1-1. Development of the Proposed Project could potentially degrade the



**existing visual character or quality of the site and its surroundings.**

The Proposed Project would involve the construction of a permanent diversion structure at the location of the San Vicente Creek POD, a new pipeline connecting the Upper San Vicente Reservoir and the existing Denniston pump station located adjacent to the Denniston Reservoir, expanding the capacity of the existing Denniston Water Treatment Plant (WTP), a new Booster Pump Station, new pipeline along Bridgeport Drive, and periodic maintenance dredging at the existing Denniston Reservoir.

The development of the new POD on San Vicente Creek would be generally within the footprint of the existing temporary structure, and any necessary associated utilities would be located underground or generally out of normal view of even the immediately surrounding equestrian facilities. The proposed San Vicente POD is located in a riparian corridor and is surrounded by dense vegetation. Temporary impacts to riparian vegetation may result from construction of the new POD structure (refer to **Section 4.3**, Biological Resources for more information regarding impacts to riparian areas). However, the density of riparian vegetation surrounding the new POD would shield view of the completed POD, and the structures would be compatible with the surrounding older structures associated with the adjacent equestrian facility. Temporary construction activities may have some limited temporary visual impacts from equipment near the POD. These temporary impacts would cease once the construction at the POD is completed. If any trees are impacted, they will be replaced with native trees consistent with the existing riparian habitat (see further discussion in **Section 4.3**, Biological Resources), thereby preventing any long-term impacts to the viewshed as seen from surrounding properties.

Visual impacts associated with the installation of the pipeline between the San Vicente POD and the existing Denniston Creek pump station would also be temporary in nature. The proposed pipeline would be installed below ground surface, and therefore would not be visible from any vantage point surrounding, or within, the project site once installation is complete. The installation of the proposed pipeline would generally follow the path of the existing unpaved farm road to minimize the need for vegetation removal. The temporary visibility of construction equipment associated with laying the pipeline would be short-term and not overly visible, except from immediately surrounding properties.

Expansion of the Denniston WTP to a larger capacity of up to 1,500 gallons per minute (gpm) would not result in visual impacts. Minor facility upgrades that would expand the plant capacity to 1,500 GPM would occur within the existing facility and would be in character with the existing visual setting.

The new Booster Pump Station would be constructed adjacent to the existing Denniston pump station on CCWD property. This Booster Pump Station would be in character with the existing

visual setting and a less-than-significant impact would result. The dredging at Denniston Reservoir would have visual impacts during the presence of construction equipment and from the modification of habitat on the upper end of the existing reservoir, which would be converted to open water, but would not change the overall visual characteristics of the area.

A new pipeline will be installed along Bridgeport Drive to improve flow capacity between the Denniston Tank and Carter Hill Tanks. Instead of replacing the smaller-capacity pipes that run along Bridgeport Drive, the new pipeline will be installed parallel to the existing pipes to minimize disruption to water users. The new pipeline will be installed below ground within the footprint of Bridgeport Drive. The temporary visibility of construction equipment associated with laying the pipeline would be short-term. Overall, this portion of the Proposed Project would have a less-than-significant impact on visual resources.

Impacts to visual resources associated with the Proposed Project would be short-term and only during the relatively short construction period. To the degree feasible, any removal of vegetation would be mitigated by replanting with native plants that maintain consistency with existing vegetation and habitat types (see **Section 4.3**, Biological Resources for further discussion of vegetation replacement). Therefore, overall visual impacts resulting from the Proposed Project would be **Less than Significant**.

## 4.2 AIR QUALITY

### 4.2.1 INTRODUCTION

This section addresses regional air quality and potential impacts to regional air quality resulting from development of the Proposed Project. Following an overview of the environmental setting in **Section 4.2.2** and the relevant federal, state, and local regulations in **Section 4.2.3**, project-related impacts and recommended mitigation measures are discussed in **Section 4.2.4**.

### 4.2.2 ENVIRONMENTAL SETTING

The project site is located within unincorporated San Mateo County (County). The County is located on the San Francisco Peninsula and is part of the nine-county San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The air quality within the SFBAAB is influenced by a wide range of emissions sources such as dense population centers, heavy vehicular traffic, and industry.

The climate of the region is Mediterranean in character, with mild, rainy winter weather from November through April, and warm to hot, sub-humid weather from May through October. The SFBAAB is generally affected by regionally high pollution emissions.

Air quality in the area is a function of the criteria air pollutants (CAPs) emitted locally, the existing regional ambient air quality, and the meteorological and topographic factors that influence the intrusion of pollutants into the area from sources outside the immediate vicinity. The project site is located on the coastal plain and not within the bayside area of the County, which is more subject to the inversion layers which tend to hold in air pollutants. The project site's air quality is based on the CAPs meeting the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS).

NAAQS protect public health and welfare. NAAQS have been established for the six CAPs, ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter (PM), and lead. California has adopted the NAAQS CAPs with more stringent standards than the NAAQS and has included four additional CAPs, sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles, which are designated as CAAQS. If a CAP exceeds the NAAQS or CAAQS, then the air basin or region is designated by the Environmental Protection Agency (EPA) or the California Air Resources Board (CARB) as nonattainment. The BAAQMD provides California Environmental Quality Act (CEQA) thresholds for CAPs designated nonattainment in an air basin or region. These thresholds are based on the ability of the air basin or region to meet the NAAQS or CAAQS.

### 4.2.3 REGULATORY SETTING

#### Federal Regulations

##### **1977 Federal Clean Air Act (CAA)**

The 1977 Federal Clean Air Act (CAA) required the EPA to identify NAAQS to protect public health and welfare. The EPA publishes criteria documents to justify the choice of standards. Pursuant to the 1990 CAA Amendments, the EPA has classified air basins (or portions thereof) as either “attainment” or “non-attainment” for each criteria air pollutant, based on whether or not the NAAQS have been achieved. The SFBAAB is designated as either non attainment, attainment or unclassified for each of the six CAPs. **Table 4.2-1** shows the NAAQS attainment status for the SFBAAB.

**TABLE 4.2-1**  
ATTAINMENT STATUS FOR THE SFBAAB

Pollutant	Average Time	NAAQS
Ozone	8-hour	Nonattainment
	1 hour	N/A
PM <sub>2.5</sub>	24 hour	Nonattainment
	Annual	Attainment
PM <sub>10</sub>	24 hour	Unclassified
	Annual	Attainment
Carbon Monoxide	8-hour	Attainment
	1-hour	Attainment
Lead	Quarterly	Attainment
Nitrogen Dioxide	1-hour	Unclassified
	Annual	Attainment
Sulfur Dioxide	24-hour	Attainment
	Annual	Attainment

Source: BAAQMD, 2012

#### State Regulations

##### **California Clean Air Act (CCAA)**

The CARB regulates mobile emissions sources and oversees the activities of Air Quality Management District’s (AQMDs) and develops state implementation plans (SIPs) for CAPs that exceed the NAAQS. CARB regulates local air quality indirectly by CAAQS and vehicle emission standards by conducting research activities, and through its planning and coordinating activities. California has adopted standards that are more stringent than the federal standards for criteria air pollutants and have included four additional criteria pollutants, sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. Under the California Clean Air Act (CCAA), patterned after the federal CAA, areas have been designated as attainment or non-attainment

with respect to CAAQS.

**Table 4.2-2** shows state standards for ozone, particulate matter less than 2.5 microns in size (PM<sub>2.5</sub>), and particulate matter less than 10 microns in size (PM<sub>10</sub>). The SFBAAB is designated under the NAAQS as nonattainment for 8-hour ozone and 24-hour PM<sub>2.5</sub>. The SFBAAB is designated under the CAAQS as nonattainment for 1- and 8-hour ozone, annual and 24-hour PM<sub>10</sub>, and annual PM<sub>2.5</sub>. The SFBAAB is in attainment or is unclassified for all other CAPs under the NAAQS and the CAAQS.

**TABLE 4.2-2**  
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	CAAQS	NAAQS
Ozone	8-hour	0.070 ppm	0.075 ppm
	1 hour	0.09 ppm	-
PM <sub>2.5</sub>	24 hour	-	35 µg/m <sup>3</sup>
	Annual	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
PM <sub>10</sub>	24 hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
	Annual	20 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>

ppm = parts per million by volume  
µg/m<sup>3</sup> = micrograms per cubic meter of air  
Source: BAAQMD, 2012

### ***Pollutants of Concern***

The pollutants of concern in the project area are ozone, particulate matter, and toxic air contaminants (TACs). A pollutant of concern is one that is designated nonattainment under the NAAQS or the CAAQS. TACs are discussed below, although no adopted air quality standards exist.

### ***Ozone***

Ozone is a criteria air pollutant that is created in the presence of sunlight through a photochemical reaction involving reactive organic gases (ROG) and nitrogen oxides (NO<sub>x</sub>). ROG and NO<sub>x</sub> are emitted as result of incomplete combustion of fossil fuels. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. As a photochemical pollutant, ozone is formed only during daylight hours under appropriate conditions, but is destroyed throughout the day and night. Ozone is considered a regional pollutant, as the reactions forming it take place over time and are often most noticeable downwind from the sources of the emissions.

### ***Particulate Matter***

Particle pollution is a mixture of microscopic solids and liquid droplets suspended in air. This pollution, also known as particulate matter, is made up of a number of components, including

acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores). The size of particles is directly linked to their potential for causing health problems. Particles smaller than 10 micrometers ( $\mu\text{m}$ ) in diameter ( $\text{PM}_{10}$ ) but greater than 2.5  $\mu\text{m}$  pose the greatest problems, because they can be inhaled deep into the lungs. Exposure to such particles can affect respiratory system function.

### ***Toxic Air Contaminants***

TACs are not considered criteria pollutants under the federal or state statutes. However, enforcement of the standards for the control of criteria pollutants, such as ozone and particulate matter, can result in reducing airborne emissions of TACs. TACs are substances that have either been identified by CARB and are known or suspected to be emitted in California and have potential adverse health effects. Currently, there are 244 TACs listed by CARB. According to CARB, the estimated health risk from TACs can be primarily attributed to relatively few compounds, such as diesel particulate matter (DPM). DPM differs from many other TACs in that it is not a single substance, but rather a complex mixture of air pollutants, composed of gaseous and solid material.

## **Regional**

### ***Bay Area Air Quality Management District***

The project site is located in the SFBAAB, which is under the jurisdiction of the BAAQMD. The BAAQMD develops SIPs for CAPs designated by the EPA as nonattainment, stationary source permits, CEQA guidelines and thresholds, and the following applicable Rules:

**Regulation 2** – Permits, the Regulation specifies the requirements for authorities to construct and permits

**Regulation 6, Rule, 1** – General Requirements, Limits the quantity of particulate matter in the atmosphere by controlling emission rates, concentration, visible emissions and opacity.

**Regulation 7** – Odorous Substances, Establishes general limitations on odorous substances and specific emission limitations on certain odorous compounds

## **Local**

### ***San Mateo County General Plan***

The project site is located in an unincorporated area of San Mateo County and is therefore subject to the County General Plan. The following goals and policies for improving regional air quality are contained within the San Mateo County General Plan (Air Resources Chapter adopted in 1994):

#### 17.15 Reduce Air Pollutants, Odors and Dust from Stationary Sources by Regulating Land Use Development

- Reduce air pollutants, offensive odors and dust from stationary sources to the maximum practicable extent by:
  - a. Requiring that all demolition, grading (excluding agriculture) and construction projects conform with applicable BAAQMD recommended dust control measures, including but not limited to, surface wetting and seeding.

### 4.2.4 IMPACT ANALYSIS

#### Methodology

Criteria pollutant and TAC emissions from construction activities, odors, and cumulative effects were evaluated using the methodology outlined in the 2010 BAAQMD CEQA Guidelines. Project screening levels set forth by the BAAQMD CEQA Guidelines were compared to the Proposed Project. Criteria pollutants and TAC emissions from operation were qualitatively analyzed due to the diminutive nature of operational emissions. Construction and operation of the Proposed Project would not overlap and therefore, are analyzed separately.

#### Thresholds of Significance

Criteria for determining the significance of impacts to air quality and climate change have been developed based on Appendix G of the CEQA *Guidelines* and relevant agency thresholds (BAAQMD). Impacts to air quality and climate change would be considered significant if the Proposed Project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is designated nonattainment under an applicable federal or State ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

Based on the above CEQA standards of significance, it has been determined that the following CEQA significance thresholds for CAPs shall be utilized to evaluate project related impacts (BAAQMD, 2010). The relevant BAAQMD thresholds provide a basis for measuring regionally significant impact. If the BAAQMD thresholds are met then the CEQA Guidelines are met.

- Under the BAAQMD's CEQA screening guidelines, construction of a proposed project would not have a significant impact if: the type of project is not listed on Screening Table 3-1 of the BAAQMD's CEQA Guidelines, the project includes basic construction mitigation, and the project would not include demolition, construction of two or more phase or land uses at the same time, extensive site preparation, or material transport (less than 800 cubic yards of transported soil).
- Under the BAAQMD's CEQA screening guidelines, if construction or operational emissions cause a significant impact, than the project would also be considered cumulatively significant; however, if construction and operational emissions result in a less-than-significant impact to regional air quality, than the project is considered not to be cumulatively considerable.
- BAAQMD Regulation 7, any project that generates odorous emission in quantities as to cause detriment, nuisance, or annoyance to any considerable number of persons or to the public is considered significant.

## Impacts and Mitigation Measures

**IMPACT 4.2-1. Construction and operation of the Proposed Project has the potential to conflict with or obstruct implementation of the applicable air quality plan or violate any air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentration.**

### ***Construction***

Construction of the Proposed Project would consist of the installation of an electricity powered Booster Pump Station and 8,760 feet of pipeline; approximately 6,100 feet of upgraded and new 8-inch diameter pipe will be installed within the right of way of an existing unpaved farm road (from the San Vicente Creek point of diversion (POD) to the Denniston Creek Pump Station), and 3,460 feet of new pipeline will be installed within the paved Bridgeport Drive. Construction activities would include trenching, backfilling, and a small amount of on-site soil hauling. Soil not used for backfill would be hauled approximately 0.5 miles. Construction would also include the building of a permanent diversion structure; construction activities would be minimal with some short term use of heavy equipment. Construction would last approximately six months and would occur five days a week, eight hours a day.

In accordance with the 2010 BAAQMD CEQA Guidelines, the Proposed Project would be considered below screening levels set forth by the BAAQMD based on the following:

- The Proposed Project is not listed on Table 3-1 of the 2010 BAAQMD CEQA Guidelines; therefore, it is considered below the applicable screening level size, and
- The project design would include all basic BAAQMD CEQA Guideline Construction



Mitigation Measures (**Mitigation Measure 4.2-1**) provided in the 2010 BAAQMD CEQA Guidelines and be implemented during construction, and

- Construction of the Proposed Project would not include demolition, construction of two or more phase or land uses at the same time, extensive site preparation or material transport (less than 800 cubic yards of transported soil).

### **Operation**

The expanded dredging maintenance of Denniston Reservoir is similar in nature to what is currently being provided. While the expanded dredging may run a few more days (not likely more than a week) than is currently the case, the activity would require the use of only one piece of equipment; a long arm dredge hoe on a tractor. Maintenance and operation of the new diversion structure on San Vicente Creek, the electric Booster Pump Station, and the pipeline would require minor and intermittent inspections and limited onsite maintenance and dredging of the reservoir as necessary to ensure proper function. Maintenance trips would constitute approximately one round-trip vehicle trip from the WTP area to the site of the diversion, and would occur on a monthly basis, at most and dredging would occur not more often than annually. Currently, the facilities on Denniston Creek are inspected on a regular basis by CCWD staff and the reservoir is dredged; therefore, additional operational activities would not occur. No additional significant operational air pollutant emissions would occur with the implementation of the Proposed Project.

With the implementation of **Mitigation Measure 4.2-1** below, construction and operation emissions of the Proposed Project would not conflict with or obstruct implementation of the applicable air quality plan or violate any air quality standard or contribute substantially to and existing or projected air quality violation or expose sensitive receptors to substantial pollutant concentration. Therefore, impacts to air quality associated with construction and operation of the Proposed Project are **Less than Significant with Mitigation**; thus, CEQA significance threshold numbers 1, 2, and 4 are met.

**Mitigation Measure 4.2-1:** The following mitigation measures shall be implemented by CCWD to reduce construction and operational related criteria emissions:

- All exposed surfaces (e.g. parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power seeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.

- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

**IMPACT 4.2-2. Development of the Proposed Project has the potential to result in a cumulatively considerable net increase of CAPs for which the project region is designated nonattainment under an applicable federal or State ambient air quality standard.**

Past, present and future development projects contribute to a region's air quality conditions on a cumulative basis; therefore by its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of the NAAQS or CAAQS. If a project's individual emissions contribute toward exceedance of the standards, then the project's cumulative impact on air quality would be significant. In developing attainment designations for criteria pollutants, the EPA considers the regions past, present and future emission levels (BAAQMD, 2010). As stated above, the Proposed Project would not cause an exceedance of the BAAQMD CEQA standards and therefore, air quality in the region is not cumulatively impacted. The Proposed Project would not result in a cumulative considerable net increase in NO<sub>x</sub>, ROG, PM<sub>10</sub>, or PM<sub>2.5</sub> for which the SFBAAB is in nonattainment. Therefore, this impact is **Less than Significant**.

**IMPACT 4.2-3. Development of the Proposed Project could potentially create objectionable odors affecting a substantial number of people.**

Construction of the Proposed Project would be temporary as would the intermittent emission of odors from heavy construction equipment. The nearest odor sensitive receptors to the northern portion of the project site (the San Vicente POD and Booster Pump Station construction area) are residences located more than 1,500 feet southeast of the project site. The nearest sensitive receptors to the Bridgeport Pipeline site are residences located along Bridgeport Drive

approximately 40 feet from the roadway where construction would occur.

Construction odors dissipate quickly and are generally not noticeable beyond project boundaries. Given the distance to the nearest sensitive receptor and the temporary and intermittent nature of project construction, no odor impact would occur during construction of the Proposed Project.

No odors are anticipated to be emitted during operation of the Proposed Project. The Proposed Project would not create objectionable odors affecting a substantial number of people. **No Impact** would occur.

## 4.3 BIOLOGICAL RESOURCES

### 4.3.1 INTRODUCTION

This section addresses the potential for the Proposed Project to impact biological resources. The relevant federal, State, and local regulations are identified in **Section 4.3.2**, the methodology used to evaluate biological resources is described in **Section 4.3.3**, the existing baseline conditions of the biological resources are described in **Section 4.3.4**, and direct, indirect, and cumulative impacts and mitigation measures to reduce those impacts to less-than-significant levels are presented in **Section 4.3.5**.

### 4.3.2 REGULATORY SETTING

#### Federal

##### *Federal Endangered Species Act*

The United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) implement the Federal Endangered Species Act (FESA) of 1973 (16 USC Section 1531 et seq.). Under the FESA, threatened and endangered species on the federal lists and their occupied habitats (50 CFR Subsection 17.11, 17.12) are protected from “take” (i.e., activities that harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect) as well as any attempt to engage in any such conduct, unless a Section 10 Permit is granted to an individual or a Section 7 consultation and a Biological Opinion with incidental take provisions are issued to the lead federal agency. Pursuant to the requirements of the FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed species may be present within the project site and vicinity and determine whether the proposed project would have any potentially significant impacts upon such species. Under the FESA, loss of occupied habitat may be an impact to the species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under the FESA or result in the destruction or adverse modification of critical habitat designated for such species (16 USC Section 1536[3], [4]). Therefore, Project-related impacts to these species or their habitats would be considered significant.

Under the FESA, critical habitat may be designated by the Secretary of the Interior or Secretary of Commerce for any FESA listed species. The term “critical habitat” for a threatened or endangered species refers to the following: specific areas within the geographical range of the species at the time it is listed that contain suitable habitat for the species, which may require special management considerations or protection; and specific areas outside the geographical range of the species at the time it is listed that contain suitable habitat for the species and is determined to be essential for the conservation of the species. Under Section 7 of the FESA, all federal agencies (including the USFWS and NMFS) are required to ensure that any action they

authorize, fund, or carry out will not likely jeopardize the continued existence of a listed species or destroy or adversely modify their critical habitats.

### ***Migratory Bird Treaty Act***

Most bird species, especially those that are breeding, migrating, or of limited distribution, are protected under federal and/or State regulations. Under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC Subsection 703-712), migratory bird species, their nests, and their eggs are protected from injury or death, and any project-related disturbances during the nesting cycle. As such, project-related disturbances must be reduced or eliminated during the nesting cycle.

### ***Wetlands and Waters of the United States***

The United States Environmental Protection Agency (EPA) has primary federal responsibility for administering regulations that concern waters of the United States under the Clean Water Act (CWA); the US Army Corps of Engineers (USACE) has primary regulatory authority over Section 404 of the CWA, regulating fill of wetlands or waters of the United States. Section 404 of the Clean Water Act regulates discharges of dredged or fill material into waters of the United States. The USACE requires that a permit be obtained if a project proposes the placement of structures within, over, or under navigable waters and/or discharging dredged or fill material into waters below the ordinary high water mark. The USACE has established a series of nationwide permits that authorize certain activities in waters of the United States. The term “discharge of dredged material” means any addition of dredged material into, including redeposit of dredged material other than incidental fallback, waters of the United States. The term includes any addition, including redeposit other than incidental fallback, of dredged material, including excavated material, into waters of the United States which is incidental to any activity, including mechanized land-clearing, ditching, channelization, or other excavation (33 CFR 232.2(3)(i-iii)).

In addition, a Section 401 Water Quality Certification is required to comply with Clean Water Act Sections 301, 302, 303, 306, and 307. In California, this has largely been delegated to, and regulated by the State Water Resources Control Board (SWRCB) and is usually implemented by the Regional Water Quality Control Board (RWQCB) or directly by the SWRCB in instances where there is a water right involved. Anyone that proposes to develop or operate a project that may result in a discharge to surface waters of the United States and/or “waters of the state” including wetlands (all types), year round and seasonal streams, lakes, and all other surface waters must obtain a federal permit and a water quality certification. At a minimum, any beneficial uses lost must be replaced by a mitigation project of at least equal function, value, and area in ordinance with the guidance for the agreement between the EPA and the USACE as they relate to waters of the United States, including regulated wetlands.

## State

### ***California Endangered Species Act***

The California Endangered Species Act (CESA) prohibits the take of state listed threatened and endangered species. Under the CESA, the California Department of Fish and Wildlife (CDFW) is responsible for maintaining a list of rare, threatened, and endangered species designated under state law (California Fish and Game Code 2070-2079). The CDFW also maintains lists of candidate species, species of special concern, and fully protected species. Candidate species are those taxa which have been formally recognized by the CDFW and are under review for addition to the state threatened and endangered list. Species of special concern are those taxa which are considered sensitive; this list serves as a “watch list.” Pursuant to the requirements of the CESA, agencies reviewing proposed projects within their jurisdictions must determine whether any state listed species have the potential to occur within a proposed project site and if the proposed project would have any significant impacts upon such species. Project-related impacts to species on the CESA’s rare, threatened, and endangered list would be considered significant. CDFW can authorize take of CESA-listed species if an incidental take permit is issued by the Secretary of the Interior or Commerce in compliance with the FESA and CDFW issues a consistency determination, or if the director of CDFW issues a permit under Section 2080.

### ***California Fish and Game Code***

Under Fish and Game Code Sections 1600-1616, the CDFW regulates activities that may alter the flow, bed, channel, or bank of streams and lakes. CDFW is authorized under the California Fish and Game Code Sections 1600-1616 to develop mitigation measures and to enter into Lake and Streambed Alteration Agreements with applicants whose proposed projects would obstruct the flow of, or alter the bed, channel, or bank of, a river or stream in which there is a fish or wildlife resource, including intermittent and ephemeral streams and wetlands.

California Fish and Game Code Subsections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of birds, their nests, and eggs. California Fish and Game Code Section 3511 lists birds that are fully protected, defined as those that may not be taken or possessed except under a specific permit. California Fish and Game Code Section 5050 prohibits any take of fully protected wildlife species, except for scientific or recovery purposes. California Fish and Game Code Section 86 defines “take” to include catch, pursue, or capture or attempt to catch, pursue, or capture.

### ***Other Special Status Species Designations***

The CEQA *Guidelines* (Section 15380) also provide that a plant or animal may be treated as rare or endangered even if it has not been placed on an official list, provided that it meets the criteria for listing. Plant or wildlife species on the California list of species of concern (CSC) as

defined by CDFW, plant species on lists 1A, 1B, and 2 of the California Native Plant Society (CNPS), and active raptor nests are included in this classification.

### ***Sensitive Vegetation Communities***

Sensitive vegetation communities are natural communities and habitats that are either unique, of relatively limited distribution in the region, or of particularly high wildlife value. These communities may or may not necessarily contain special status species. These sensitive natural communities are usually identified in local or regional plans, policies, or regulations, or by the CDFW or the USFWS. Impacts to sensitive natural communities and habitats must be considered and evaluated under CEQA.

### ***The California Coastal Act***

The California Coastal Commission (Commission), in partnership with coastal cities and counties, plans and regulates the use of land and water in the coastal zone under the California Coastal Act (CCA). On land, the coastal zone varies in width from several hundred feet in highly urbanized areas up to five miles in certain rural areas, and offshore the coastal zone includes a three-mile-wide band of ocean. Development activities, which are broadly defined by the CCA to include (among others) construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a coastal development permit from either the Commission or the local government land use agency if it has an approved Local Coastal Program (LCP). The CCA includes goals and policies that constitute the statutory standards applied to planning and regulatory decisions made by the Commission and by local governments. Refer to the County of San Mateo LCP discussion below for more detail. Wetland and riparian habitat are examples of habitats that are specifically protected under the CCA and implementing regulations. The Director of CDFW designates sensitive habitats and wetlands under the CCA but such designations may be supplemented by local coastal or general plans.

## **Local**

### ***San Mateo County General Plan***

San Mateo County's (County) General Plan (1986) contains the following policies related to biological resources that are applicable to the Proposed Project:

### ***Vegetative, Water, Fish and Wildlife Resource Policies***

#### **1.2 Protect Sensitive Habitats**

- Protect sensitive habitats from reduction in size or degradation of the conditions necessary for their maintenance.

1.3 Protection and Productive Use of Economically Valuable Vegetative, Water, Fish, and Wildlife Resources

- Protect the availability and encourage the productive use of the County's economically valuable vegetative, water, fish, and wildlife resources in a manner which minimizes adverse environmental impacts.

1.4 Access to Vegetative, Water, Fish, and Wildlife Resources

- Protect and promote existing rights of public access to vegetative, water, fish, and wildlife resources for purposes of study and recreation consistent with the need to protect public rights, rights of private property owners, and protection and preservation of such resources.

**General Policies**

1.20 Importance of Sensitive Habitats

- Consider areas designated as sensitive habitats as priority resources requiring protection.

1.21 Importance of Economically Valuable Vegetative, Water, Fish, and Wildlife Resources

- Consider vegetative, water, fish, and wildlife resources which are economically valuable as priority resources to be enhanced, utilized, managed, and maintained for the needs of present and future generations.

**Regulation of Development**

1.22 Regulate Development to Protect Vegetative, Water, Fish, and Wildlife Resources

- Regulate land uses and development activities to prevent, and if infeasible, mitigate to the extent possible, significant adverse impacts on vegetative, water, fish, and wildlife resources.
- Place a priority on the managed use and protection of vegetative, water, fish, and wildlife resources in rural areas of the County.

1.23 Regulate Location, Density, and Design of Development to Protect Vegetative, Water, Fish, and Wildlife Resources

- Regulate the location, density, and design of development to minimize significant adverse impacts and encourage enhancement of vegetative, water, fish, and wildlife resources.

**Resource Protection**

1.24 Protect Vegetative Resources

- Ensure that development will: (1) minimize the removal of vegetative resources and/or; (2) protect vegetation which enhances microclimate, stabilizes slopes, or reduces



surface water runoff, erosion, or sedimentation; and/or (3) protect historic and scenic trees.

#### 1.25 Protect Water Resources

- Ensure that development will: (1) minimize the alteration of natural water bodies; (2) maintain adequate stream flows and water quality for vegetative, fish, and wildlife habitats; (3) maintain and improve, if possible, the quality of groundwater basins and recharge areas; and (4) prevent to the greatest extent possible the depletion of groundwater resources.

#### 1.26 Protect Fish and Wildlife Resources

- Ensure the development will minimize the disruption of fish and wildlife and their habitats.

### ***Sensitive Habitats***

#### 1.27 Regulate Development to Protect Sensitive Habitats

- Regulate land uses and development activities within and adjacent to sensitive habitats in order to protect critical vegetative, water, fish, and wildlife resources; protect rare, endangered, and unique plants and animals from reduction in their range or degradation of their environment; and protect and maintain the biological productivity of important plant and animal habitats.

#### 1.28 Establish Buffer Zones

- Establish necessary buffer zones adjacent to sensitive habitats, which include areas that directly affect the natural conditions in the habitats.

#### 1.29 Uses Permitted in Sensitive Habitats

- Within sensitive habitats, permit only those land uses and development activities that are compatible with the protection of sensitive habitats, such as fish and wildlife management activities, nature education and research, trails and scenic overlooks, and, at a minimum level, necessary public service and private infrastructure.

#### 1.30 Uses Permitted in Buffer Zones

- Within buffer zones adjacent to sensitive habitats, permit the following land uses and development activities: (1) land uses and activities which are compatible with the protection of sensitive habitats, such as fish and wildlife management activities, nature education and research, trail and scenic overlooks, and, at a minimum level, necessary public and private infrastructure; (2) land uses which are compatible with the surrounding land uses and will mitigate their impact by enhancing or replacing sensitive habitats; and (3) if no feasible alternative exists, land uses which are compatible with the surrounding land uses.

#### 1.31 Regulate the Location, Site, and Design of Development in Sensitive Habitats

- Regulate the location, site, and design of development in sensitive habitats and buffer zones to minimize, to the greatest extent possible, adverse impacts and enhance positive impacts.

1.32 Performance Criteria and Development Standards

- Establish performance criteria and development standards for development permitted within sensitive habitats and buffer zones, to prevent and, if feasible, mitigate to the extent possible, significant negative impacts, and to enhance positive impacts.

***Productive Uses***

1.33 Regulate Productive Uses of Vegetative, Water, Fish, and Wildlife Resources

- Regulate resource productive uses which are subject to local control in order to prevent and, if infeasible, mitigate to the extent possible significant adverse impacts on vegetative, water, fish, and wildlife resources and to maintain and enhance (1) productivity of forests and other vegetative resources; (2) productive capacity and quality of groundwater basins and recharge areas, streams, reservoirs, and other water bodies; (3) productivity of fisheries and other fish and wildlife resources; and (4) the recreational value and aesthetic value of these areas.

1.34 Protect Productive Uses of Vegetative, Water, Fish, and Wildlife Resources

- Regulate development in order to protect and promote the managed use of vegetative, water, fish, and wildlife resources.

1.36 Protection and Productive Use of Water Resources

- Ensure that land uses and development on or near water resources will not impair the quality or productive capacity of these resources.

***Control of Incompatible Vegetative, Fish and Wildlife***

1.38 Control Incompatible Vegetative, Fish, and Wildlife

- Encourage and support the control of vegetation, fish, and wildlife resources which are harmful to the surrounding environment or pose a threat to public health, safety, and welfare.

1.39 Minimize Adverse Impacts of Programs Controlling Incompatible Vegetation, and Fish, and Wildlife

- Minimize the negative impacts and risks of programs controlling incompatible vegetation, fish, and wildlife.

***San Mateo County Ordinances***

The County has adopted the following ordinances to provide protection to natural resources within the County's limits.

***Significant Tree Ordinance***

The Significant Tree Ordinance of San Mateo County (San Mateo County, 2010) requires a permit for the removal of any indigenous or exotic tree with a circumference of at least 38 inches when measured at four feet vertically above the ground or immediately below the lowest branch, whichever is lower. A permit is also required for the removal of a portion of a community of trees, which refers to a group of trees of any size which are ecologically or aesthetically related to each other such that loss of several of them would cause a significant ecological, aesthetic, or environmental impact in the immediate area.

***Heritage Tree Ordinance***

The Regulation of the Removal and Trimming of Heritage Trees on Public and Private Property (San Mateo County, 1977) prohibits the removal of any heritage tree without first obtaining a permit from the San Mateo County Planning Department. A heritage tree is a tree specially listed as endangered by either the CNPS or the Federal Register or any tree species designated protected by the County Board of Supervisors.

***Excavating, Grading, Filling, and Clearing Ordinance***

This ordinance requires a land clearing permit for vegetation removal when: (a) the land area to be cleared is 5,000 square feet or greater, within any two-year period except in County Scenic Corridors where vegetation removal is greater than 1,000 square feet; (b) the existing slopes are greater than 20 percent; and (c) the land area to be cleared is in any sensitive habitat or buffer zone, as identified in the County General Plan.

Applications for this permit must include plans for erosion control, the removal and disposal of vegetation, and a statement of purpose for removal of vegetation. Performance standards require erosion control and grading standards in conformance with the Grading Permit Performance Standards Handbook. Approval of the permit is subject to the finding that the granting of the permit will not have a significant adverse effect on the environment.

***County of San Mateo Local Coastal Program***

Under the LCP, the County assumes responsibility for implementing the CCA in the unincorporated area of the County, including issuance of Coastal Development Permits (CDPs) (San Mateo County, 2010). All development in the coastal zone requires either a CDP or an exemption from CDP requirements. For issuance of a permit, development must comply with the goals and policies of the LCP and those ordinances adopted to implement the LCP. The Sensitive Habitat Component of the County's current LCP contains the following policies to facilitate the management of the sensitive coastal resources.

### **General Policies**

#### **7.1 Definition of Sensitive Habitats**

- Define sensitive habitats as any area in which plant or animal life or their habitats are either rare or especially valuable and any area which meets one of the following criteria: (1) habitats containing or supporting “rare and endangered” species as defined by the State Fish and Game Commission, (2) all perennial and intermittent streams and their tributaries, (3) coastal tide lands and marshes, (4) coastal and offshore areas containing breeding or nesting sites and coastal areas used by migratory and resident water-associated birds for resting areas and feeding, (5) areas used for scientific study and research concerning fish and wildlife, (6) lakes and ponds and adjacent shore habitat, (7) existing game and wildlife refuges and reserves, and (8) sand dunes.
- Sensitive habitat areas include, but are not limited to, riparian corridors, wetlands, marine habitats, sand dunes, sea cliffs, and habitats supporting rare, endangered, and unique species.

#### **7.2 Designation of Sensitive Habitats**

- Designate sensitive habitats as including, but not limited to, those shown on the Sensitive Habitat Map for the Coastal Zone.

#### **7.3 Protection of Sensitive Habitats**

- Prohibit any land use or development which would have significant adverse impacts on sensitive habitat areas.
- Development in areas adjacent to sensitive habitats shall be sited and designed to prevent impacts that could significantly degrade the sensitive habitats. All uses shall be compatible with the maintenance of biologic productivity of the habitats.

#### **7.4 Permitted Uses in Sensitive Habitats**

- Permit only resource dependent uses in sensitive habitats. Resource dependent uses for riparian corridors, wetlands, marine habitats, sand dunes, sea cliffs and habitats supporting rare, endangered, and unique species shall be the uses permitted.
- In sensitive habitats, require that all permitted uses comply with USFWS and CDFW regulations.

### **Riparian Corridors**

#### **7.9 Permitted Uses in Riparian Corridors**

- Within corridors, permit only the following uses: (1) education and research, (2) consumptive uses as provided for in the California Fish and Game Code and Title 14 of the California Administrative Code, (3) fish and wildlife management activities, (4) trails and scenic overlooks on public land(s), and (5) necessary water supply projects.

- When no feasible or practicable alternative exists, permit the following uses: (1) stream dependent aquaculture, provided that non-stream dependent facilities are located outside of corridor, (2) flood control projects, including selective removal of riparian vegetation, where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, (3) bridges when supports are not in significant conflict with corridor resources, (4) pipelines, (5) repair or maintenance of roadways or road crossings, (6) logging operations which are limited to temporary skid trails, stream crossings, roads, and landings, in accordance with State and County timber harvesting regulations, and (7) agricultural uses, provided no existing riparian vegetation is removed and no soil is allowed to enter the stream channels.

##### 7.11 Establishment of Buffer Zones

- On both sides of riparian corridors, from the “limit of riparian vegetation,” extend buffer zones 50 feet outward for perennial streams and 30 feet outward for intermittent streams.
- Where no riparian vegetation exists along both sides of riparian corridors, extend buffer zones 50 feet from the predictable high water point for perennial streams and 30 feet from the midpoint of intermittent streams.
- Along lakes, ponds, and other wet areas, extend buffer zones 100 feet from the high water point except for manmade ponds and reservoirs used for agricultural purposes for which no buffer zone is designated.

##### 7.17 Performance Standards in Wetlands

- Require that development permitted in wetlands minimize adverse impacts during and after construction. Specifically, require that: (1) all paths be elevated (catwalks) so as not to impede movement of water, (2) all construction takes place during daylight hours, (3) all outdoor lighting be kept at a distance away from the wetland sufficient not to affect the wildlife, (4) motorized machinery be kept to less than 45 a-weighted decibels (dBA) at the wetland boundary, except for farm machinery, (5) all construction which alters wetland vegetation be required to replace the vegetation to the satisfaction of the Planning Director including “no action” in order to allow for natural reestablishment, (6) no herbicides be used in wetlands unless specifically approved by the County Agricultural Commissioner and the CDFW, and (7) all projects be reviewed by the CDFW and the SWRCB to determine appropriate mitigation measures.

##### 7.18 Establishment of Buffer Zones

- Buffer zones shall extend a minimum of 100 feet landward from the outermost line of wetland vegetation. This setback may be reduced to no less than 50 feet only where (1) no alternative development site or design is possible; and (2) adequacy of the alternative setback to protect wetland resources is conclusively demonstrated by a professional

biologist to the satisfaction of the County and the CDFW. A larger setback shall be required as necessary to maintain the functional capacity of the wetland ecosystem.

### **Wetlands**

#### 7.14 Definition of Wetlands

- Define wetland as an area where the water table is at, near, or above the land surface long enough to bring about the formation of hydric soils or to support the growth of plants which normally are found to grow in water or wet ground. Such wetlands can include mudflats (barren of vegetation), marshes, and swamps. Such wetlands can be either fresh or saltwater, along streams (riparian), in tidally influenced areas (near the ocean and usually below extreme high water of spring tides), and marginal to lakes, ponds, and manmade impoundments. Wetlands do not include areas which in normal rainfall years are permanently submerged (streams, lakes, ponds, and impoundments), nor marine or estuarine areas below extreme low water of spring tides, nor vernal wet areas where the soils are not hydric. In San Mateo County, wetlands typically contain the following plants: cordgrass, pickleweed, jaumea, frankenia, marsh mint, tule, bullrush, narrow-leaf cattail, broadleaf cattail, pacific silverweed, salt rush, and bog rush. To qualify, a wetland must contain at least a 50 percent cover of some combination of these plants, unless it is a mudflat.

### **Rare and Endangered Species**

#### 7.32 Designation of Habitats of Rare and Endangered Species

- Designate habitats of rare and endangered species to include, but not be limited to, those areas defined on the Sensitive Habitats Map for the Coastal Zone.

#### 7.33 Permitted Uses

- a. Permit only the following uses: (1) education and research, (2) hunting, fishing, pedestrian, and equestrian trails that have no adverse impact on the species or its habitat, and (3) fish and wildlife management to restore damaged habitats and to protect and encourage the survival of rare and endangered species.
- b. If the critical habitat has been identified by the Federal Office of Endangered Species, permit only those uses deemed compatible by the USFWS, in accordance with the provisions of the FESA of 1973, as amended.

#### 7.34 Permit Conditions

- Require, prior to permit issuance, that a qualified biologist prepare a report which defines the requirements of rare and endangered organisms. At minimum, require the report to discuss: (1) animal food, water, nesting, or denning sites and reproduction, predation, and migration requirements, (2) plants life histories and soils, climate, and geographic

requirements, (3) a map depicting the locations of plants or animals and/or their habitats, (4) any development must not impact the functional capacity of the habitat, and (5) recommend mitigation if development is permitted within or adjacent to identified habitats.

#### 7.35 Preservation of Critical Habitats

- Require preservation of all habitats of rare and endangered species using criteria including, but not limited to, Section 6325.2 (Primary Fish and Wildlife Habitat Area Criteria) and Section 6325.7 (Primary Natural Vegetative Areas Criteria) of the Resource Management Zoning District.

#### 7.36 San Francisco Garter Snake (SFGS)

- Prevent any development where there is known to be a riparian or wetland location for the SFGS (*Thamnophis sirtalis tetrataenia*) with the following exceptions: (1) existing manmade impoundments smaller than one-half acre in surface area, and (2) existing manmade impoundments greater than one-half acre in surface area providing mitigation measures are taken to prevent disruption of no more than one-half of the snake's known habitat in that location, in accordance with recommendations from the CDFW.
- Require developers to make sufficiently detailed analyses of any construction which could impair the potential or existing migration routes of the SFGS. Such analyses will determine appropriate mitigation measures to be taken to provide appropriate migration corridors.

### 4.3.3 METHODOLOGY

The information identified in this section was obtained from the *Biological Resources Assessment* (BRA; AES, 2013) which was prepared to document biological resources within the project site.

The report is provided in **Appendix C**. The methodology identified in the BRA was based on the following information:

- USFWS list of federally listed special status species with the potential to occur on or be affected by projects in the "Montara Mountain" quad (USFWS, 2011);
- CNPS list of special status species known to occur within the "Montara Mountain" quad and the surrounding five quads (San Francisco South, Hunters Point, San Mateo, Woodside, and Half Moon Bay) (CNPS, 2013);
- California Natural Diversity Database (CNDDDB) list of special status species known to occur within the "Montara Mountain" quad and the surrounding five quads (CDFW, 2013); and
- CNDDDB map of special status species documented within a five-mile radius of the project site.

Biological surveys were conducted on February 2, 3, 16 and 17, 2010, May 16 and 17, 2011, June 2, 2011, July 17, 2011, and November 13, 2013, as identified within the BRA. The biological surveys consisted of conducting a stream assessment, conducting botanical inventories, evaluating habitat types, mapping preliminary wetlands and waterways, collecting gage data from Denniston Creek and San Vicente Creek, and documenting potential habitat for special status species with the potential to occur within the project site. The botanical inventories were conducted in accordance with CDFW's (2009) plant survey protocols. The habitat types were classified using the *Manual of California Vegetation (MCV) Second Edition* (Sawyer et al, 2009) and were modified based on existing habitat conditions within the project site. Wetlands and other aquatic habitats were informally identified using criteria defined in the *1987 Wetland Delineation Manual* by the USACE. Habitat types present on the project site were mapped during the biological surveys using a Trimble Geo-XT handheld global positioning system (GPS) and aerial photographs and were subsequently digitized or downloaded onto appropriate base maps in ArcGIS 9. Plants and wildlife observed during the biological surveys are identified in **Appendix C**.

Attachment 3 within the BRA (**Appendix C**) provides a summary of special status species in the vicinity of the project site based on the USFWS file data, the CNPS inventory, and the CNDDDB query, and provides a rationale as to whether the species has the potential to occur within the project site based on presence of the species or their habitat types documented during the February 2, 3, 16 and 17, 2010, May 16 and 17, 2011, June 2, 2011, July 17, 2011 and November 13, 2013 biological surveys and botanical inventories and documented geographic and elevation ranges required by the species. Several special status species were eliminated because the project site lacks suitable habitat or occurs outside of the known elevation or geographic ranges for the species. In addition, potentially occurring plants were eliminated because they were not observed during the May 16 and 17, 2011 and July 17, 2011 botanical inventories conducted within the evident and identifiable blooming period. Species without the potential to occur in the vicinity of the project site are not discussed further in this Draft EIR.

### 4.3.4 ENVIRONMENTAL SETTING

Land uses in the vicinity of the project site include agricultural, rural residences, and open space. Topography within the project site is characterized by relatively flat areas in the southwest, rising to sloped hills in the northeast. Elevation within the project site ranges from 27 to 67 meters above mean sea level.

#### Habitat Types

Seven terrestrial and four aquatic habitat types occur within the project site. Terrestrial habitat types include: California annual grassland, coastal prairie, coastal scrub, riparian vegetation, eucalyptus grove, agricultural, and ruderal/disturbed areas. Aquatic habitat types include: perennial creek, intermittent drainage, manmade reservoir, and seasonal wetland. **Table 4.3-1**



provides a summary of the terrestrial and aquatic habitat types by acreages. A habitat map of the project site is provided in **Figure 4.3-1**. Zoomed-in views of the habitat map are provided in **Figures 4.3-1a, 4.3-1b, 4.3-1c, and 4.3-1d**. Representative photographs of the habitat types are shown in **Figures 4.3-2a and 4.3-2b**.

**TABLE 4.3-1**  
HABITAT TYPES BY ACREAGES WITHIN THE PROJECT SITE

Habitat Types	Acreages
<b>Terrestrial</b>	
California Annual Grassland	1.77
Coastal Prairie	0.29
Coastal Scrub	9.34
Riparian Vegetation	5.82
Eucalyptus Grove	2.99
Agriculture	0.10
Ruderal/Disturbed Areas	14.35
<b>Subtotal</b>	<b>34.66</b>
<b>Aquatic</b>	
Perennial Creek	1.04
Intermittent Drainage	0.03
Reservoir	0.84
Seasonal Wetland	0.01
<b>Subtotal</b>	<b>1.92</b>
<b>Total</b>	<b>36.58</b>

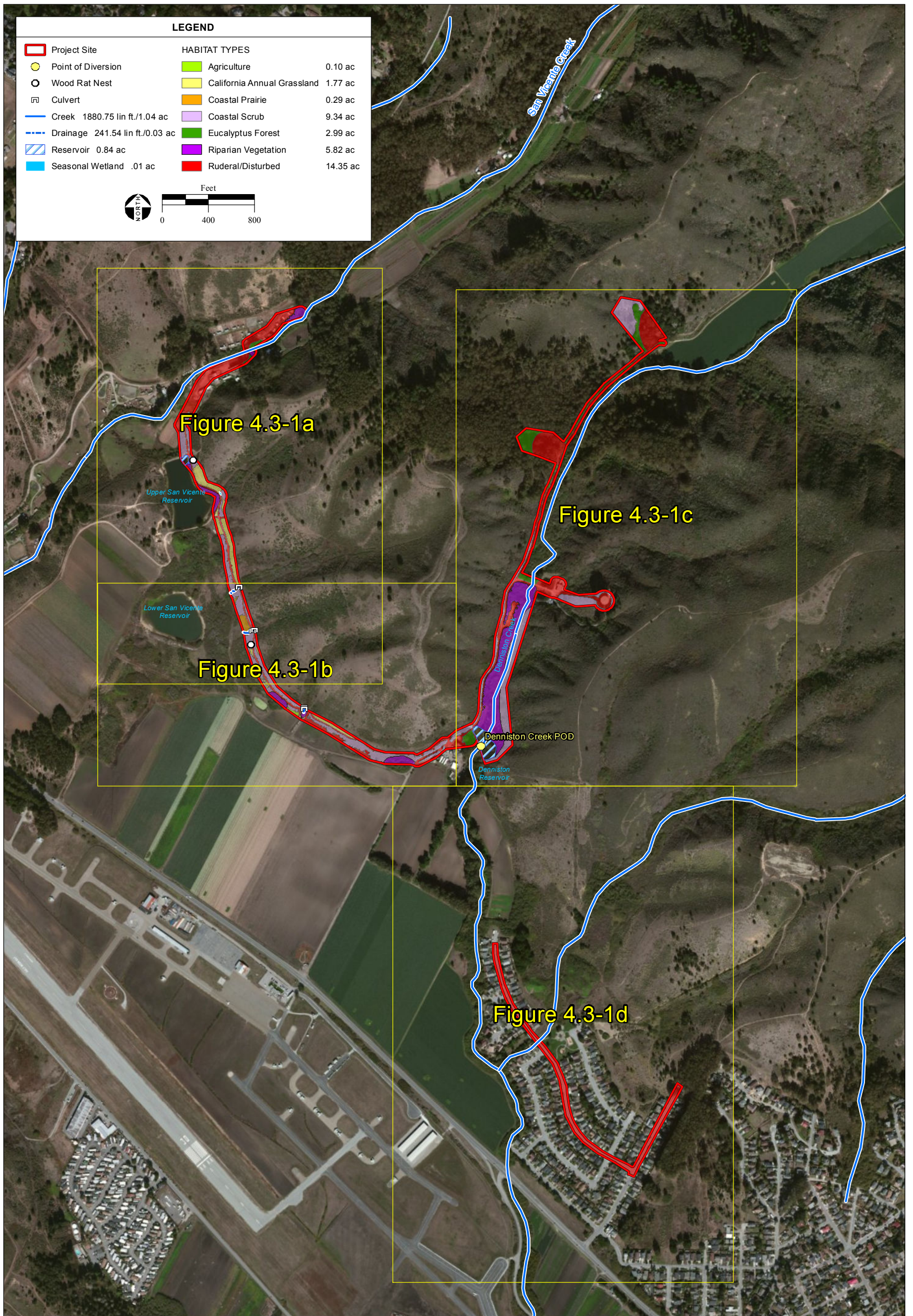
### California Annual Grassland

California annual grassland occurs in several areas adjacent to the scrub and along the graded roadways within the project site (**Figure 4.3-2a: Photograph 1**). Dominant vegetation includes: soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), velvet grass (*Holcus lanatus*), zorro fescue (*Vulpia myuros*), wild oat (*Avena fatua*), and Italian ryegrass (*Lolium multiflorum*). Native grasses including purple needlegrass (*Nassella pulchra*) and California oatgrass (*Danthonia californica*) occur occasionally within this habitat type. Forbs include: rose clover (*Trifolium hirtum*), storksbill (*Erodium* sp.), periwinkle (*Vinca major*), geranium (*Geranium dissectum*), vetch (*Vicia* sp.), and milk thistle (*Silybum marianum*). This habitat type corresponds most closely to Wild Oats Grassland (*Avena* [*barbata*, *fatua*] Semi-Natural Herbaceous Stands) in the MCV.

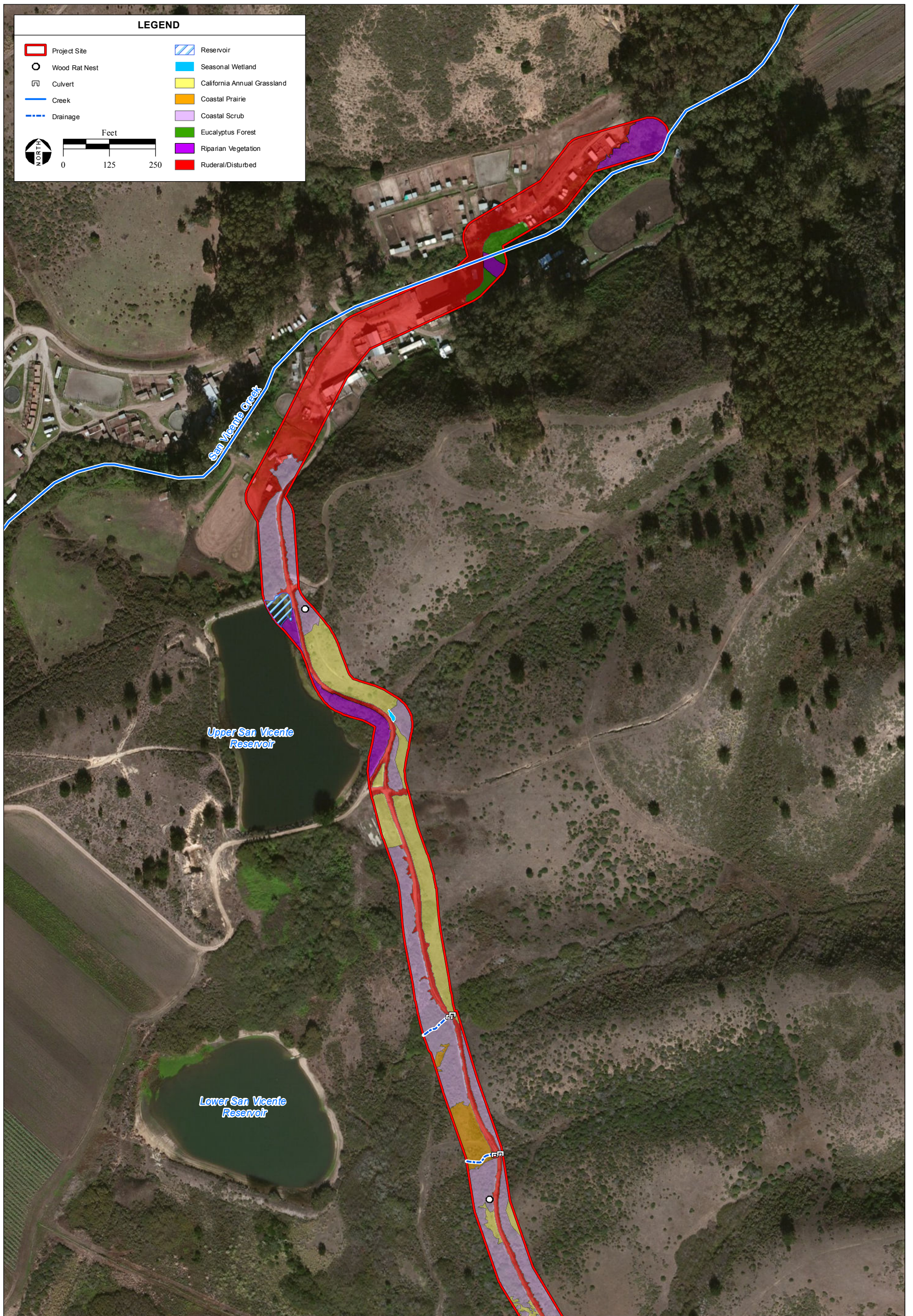
### Coastal Prairie

Coastal prairie occurs within the project site (**Figure 4.3-2a: Photograph 2**). Native grasses and forbs dominate over non-natives in these areas. Dominant native vegetation includes: California oatgrass and purple needlegrass. Non-native grasses and native forbs include: sky lupine (*Lupinus nanus*), blue-eyed grass (*Sisyrinchium bellum*), and corn snapdragon (*Antirrhinum orontium*).









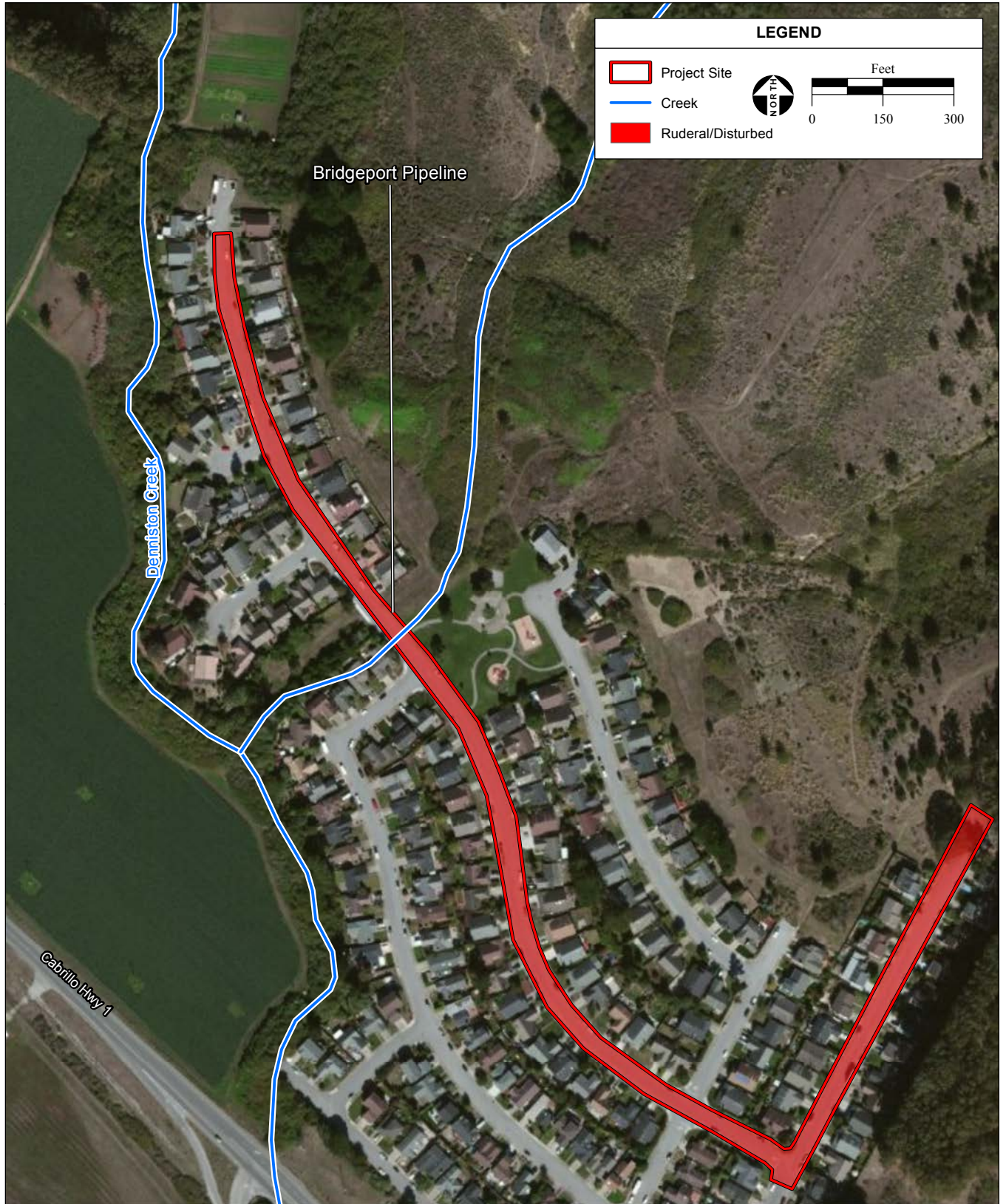












SOURCE: Microsoft UC-G Aerial Photograph, 10/2010; AES, 2013

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**Figure 4.3-1d**  
Habitat Types and Biological Resources





**PHOTO 1:** California Annual Grassland.



**PHOTO 2:** Coastal Prairie.



**PHOTO 3:** Coastal Scrub.



**PHOTO 4:** Riparian Vegetation.



**PHOTO 5:** Eucalyptus Grove.



**PHOTO 6:** Agriculture.





**PHOTO 7:** Ruderal/Developed.



**PHOTO 8:** Intermittent Drainage.



**PHOTO 9:** Reservoir.



**PHOTO 10:** Wetland.



### Riparian

Riparian habitat occurs within two portions of the project site (**Figure 4.3-2a: Photograph 4**). The riparian vegetation along San Vicente creek is dominated by arroyo willow (*Salix lasiolepis*), Sitka willow (*Salix stichensis*), creek dogwood (*Cornus sericea*), blue gum (*Eucalyptus globulus*), and red elderberry (*Sambucus racemosa*). Shrubs and vines include: thimbleberry (*Rubus parviflorus*), western sword fern (*Polystichum minutum*), and cape ivy (*Delairea odorata*). Understory vegetation includes: stinging nettle (*Urtica dioica*), fennel (*Foeniculum vulgare*), and hedge nettle (*Stachys bullata*). The riparian canopy resembles Arroyo Willow Thickets (Shrubland Alliance); however, the area has been influenced by the activities of local farmers and the vegetation reflects human disturbance.

Riparian vegetation also occurs along Denniston Creek. The canopy is dominated by arroyo willow, Sitka willow, and red willow (*Salix laevigata*) interspersed with creek dogwood and California bay (*Umbellularia californica*). Understory vegetation includes: California tule (*Scirpus acutus*), tule (*Scirpus microcarpus*), cattail (*Typha latifolia*), California blackberry (*Rubus ursinus*), hedge nettle, thimbleberry, and horsetail (*Equisetum telmateia*). The riparian canopy resembles Arroyo Willow Thickets (Shrubland Alliance).

AES observations during the habitat and stream assessment surveys indicate that the current flows and use patterns (including the current spillage below Denniston Reservoir) appear to be sufficient to sustain the biological functions as they are now for this habitat type.

### Eucalyptus Grove

Eucalyptus grove occurs in two previously, and currently, used dredged disposal areas (**Figure 4.3-2a: Photograph 5**). Eucalyptus grove resembles Eucalyptus Groves (*Eucalyptus [globulus, camaldulensis]* Semi-Natural Woodland Stands). Another eucalyptus grove occurs adjacent to Denniston Reservoir and another occurs adjacent to San Vicente Creek downstream from the point of diversion (POD).

The canopy of one eucalyptus grove located in the southern portion of the project site is dominated by non-native blue gum (*Eucalyptus globulus*). Single red elderberry bushes are dispersed through this area. Understory ruderal and non-native vegetation includes: cape ivy, white rampion fumitory (*Fumaria capreolata*), nasturtium (*Nasturtium officinale*), and bull thistle (*Cirsium vulgare*). The canopy of the other eucalyptus grove located in the northern portion of the project site is more open and less disturbed than the southern one, with several mature Monterey cypress (*Cupressus macrocarpa*) and Monterey pine (*Pinus radiata*) interspersed throughout the blue gum. English ivy (*Hedera helix*) is the dominant understory vegetation.

### Agriculture

Agriculture occurs within the northern portion of the project site (**Figure 4.3-2a: Photograph 6**). The agricultural habitat type is tilled annually, irrigated, and treated with herbicides and pesticides as part of the crop production practices. Crops are comprised primarily of the monoculture production of brussels sprouts (*Brassica oleracea*). This habitat type does not correspond to any vegetation community described in the MCV.

### Ruderal/Disturbed

Ruderal/disturbed areas include ornamental landscaping around residential dwellings and outbuildings, horse and livestock facilities, dredge disposal sites, and along roadways (**Figure 4.3-2b: Photograph 7**). Dominant shrubs and understory vegetation include: Italian ryegrass, barley (*Hordeum marinum* sp. *gussonianum*), dogtail grass (*Cynosurus echinatus*), riggut brome, soft-chess, pampas grass (*Cortaderia jubata*), wild oat, French broom (*Genista monspessulana*), Italian thistle (*Carduus pycnocephalus*), fennel, white ramping fumitory, Hooker's evening primrose (*Oenothera elata* ssp. *hookeri*), and narrow-leaf plantain (*Plantago lanceolata*). This habitat type does not correspond to any vegetation community described in the MCV.

### Perennial Creek

Two perennial creeks occur within the project site: San Vicente and Denniston Creeks. Dominant vegetation along the banks of the perennial creeks is similar to those discussed within the riparian habitat type. The habitat of the perennial creeks is typical of creeks within this region, although the geologic strata through which these streams flow are of limited distribution outside of the immediate environs of the project area along this portion of the San Mateo Coast (please see **Section 4.6**, Geology and Soils and **Section 4.9**, Hydrology for details). Representative photographs of San Vicente Creek are provided in **Figure 4.3-2c** and photographs of Denniston Creek are provided in **Figure 4.3-2d**. The photographs are ordered from the POD downstream to the mouth of each creek.

### Intermittent Drainage

Three intermittent drainages occur within the project site (**Figure 4.3-2b: Photograph 8**). Dominant vegetation includes: fennel, California blackberry, stinging nettle, California figwort, and California tule.

### Manmade Reservoir

Three manmade reservoirs occur within the project site (**Figures 4.3-2b: Photograph 9**). One is located on stream of Denniston Creek (Denniston Reservoir). The other two, Upper and Lower San Vicente Reservoirs, are located to the east of San Vicente Creek and are fed by agricultural diversions from that creek. Dominant vegetation along the banks of the manmade reservoirs includes: common knotweed (*Polygonum arenastrum*), monkeyflower (*Mimulus*



**PHOTO 11:** Point of Diversion on San Vicente Creek.



**PHOTO 12:** San Vicente Creek.



**PHOTO 13:** San Vicente Creek near Fitzgerald Reserve.



**PHOTO 14:** San Vicente Creek just upstream from mouth.



**PHOTO 15:** San Vicente Creek at mouth (Halfmoon Bay).





**PHOTO 16:** Denniston Dam spillway.



**PHOTO 17:** Downstream of Denniston Dam spillway.



**PHOTO 18:** Gauge looking downstream Denniston Creek..



**PHOTO 19:** Possible barrier on Denniston Creek.



**PHOTO 20:** Dennison Creek near Possible Barrier.



**PHOTO 21:** Denniston Creek looking towards mouth at Halfmoon Bay.

*guttatus*), stinging nettle, Hooker's evening primrose, red elderberry, California blackberry, stinging nettle, California figwort, and California tule.

### Seasonal Wetland

One seasonal wetland occurs within the project site (**Figure 4.3-2b: Photograph 10**).

Dominant vegetation includes: dense sedge (*Carex densa*), spikerush (*Eleocharis macrostachya*), nutsedge (*Cyperus eragrostis*), curly dock (*Rumex crispus*), sheep sorrel (*Rumex acetosella*), and toad rush (*Juncus bufonius*). The seasonal wetland would not be affected by construction of the pipeline by project design.

### Waters of the United States

The term "waters of the United States" is defined as:

- All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; or
- All interstate waters including interstate wetlands; or all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use or degradation of which could affect interstate or foreign commerce (38 CFR Part 328).

"Wetlands" are defined as:

- Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (38 CFR Part 328).

The following potential waters of the United States occur within the project site: two perennial creeks, three intermittent drainages, two manmade reservoirs, and one seasonal wetland (**Figure 4.3-1**). Construction of facilities that affect waters of the United States may be subject to regulation by the USACE under Section 404 and by EPA (as delegated to the SWRCB or RWQCB) under 401 of the Clean Water Act and/or by the CDFW under Sections 1600 – 1616 of the California Fish and Game Code. The shapes, sizes, and jurisdictional status of all water features identified herein are approximate and have not been confirmed by jurisdictional agencies.

## Sensitive Habitats

Four sensitive habitats occur within the project site: riparian vegetation, perennial creek, intermittent drainage, and seasonal wetland. The San Mateo County LCP, CNPS, and CDFW require evaluation of sensitive habitats. These four habitat types are discussed in detail under the **Habitat Types** and **Waters of the United States** heading above.

## Wildlife Corridors

The riparian habitat along the perennial creeks provides wildlife movement corridors between the hills to the northeast and the coast to the west.

## Trees

Several of the non-native blue gum, Monterey cypress, and Monterey pine trees within the previously dredged disposal areas of the eucalyptus grove are comprised of circumferences that exceed 38 inches when measured at four feet vertically above the ground. Removal of these trees may be subject to the County's Significant Tree Ordinance. Avoidance of tree removal is the priority in the project design.

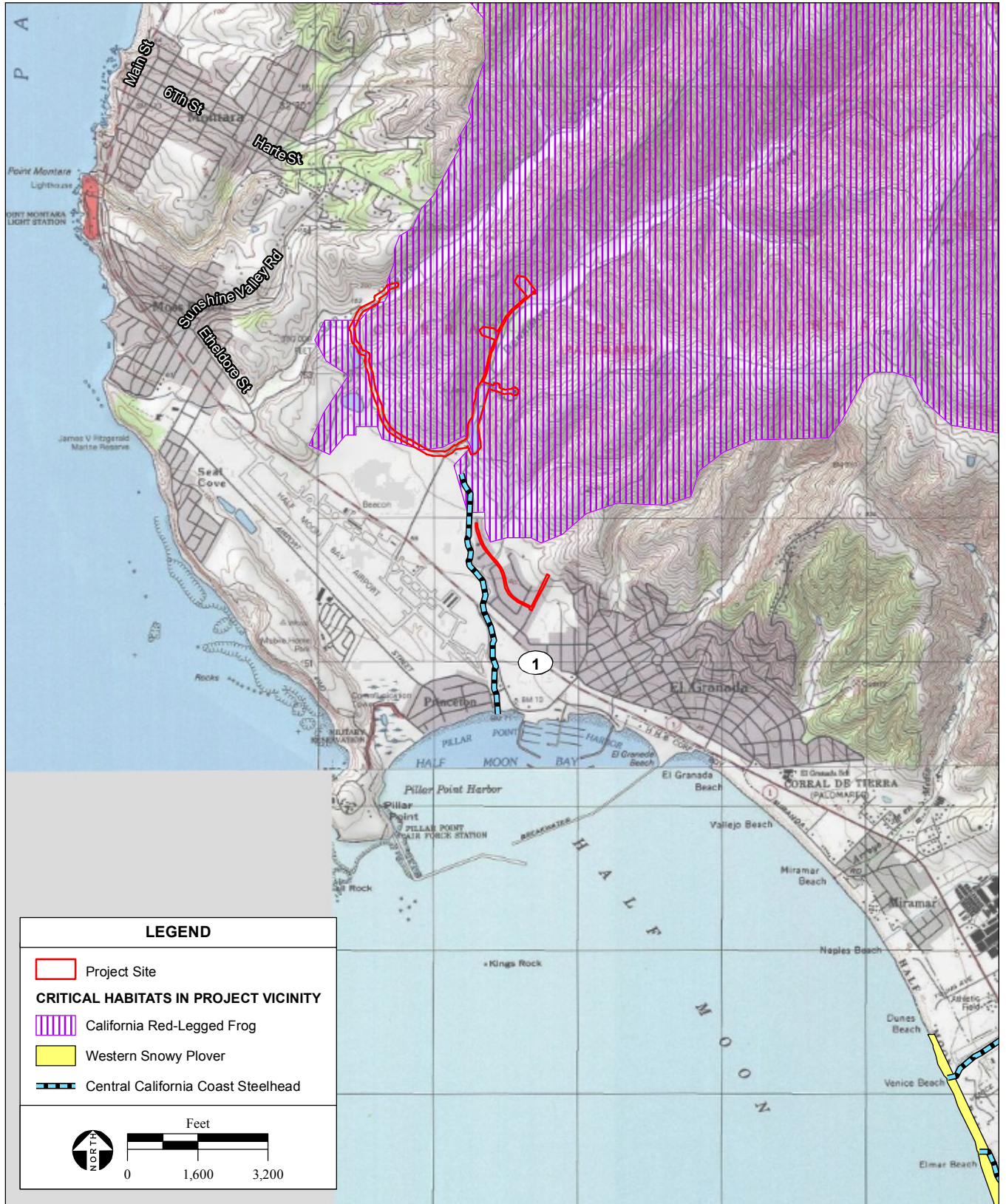
## Special Status Species

For the purposes of this Draft EIR, special status species are defined to include those that are:

- Listed as endangered or threatened species under the FESA (or formally proposed, or candidates, for listing);
- Listed as endangered or threatened species under the CESA (or proposed for listing);
- Designated as endangered or rare species, pursuant to California Fish and Game Code (§1901);
- Designated as fully protected species, pursuant to California Fish and Game Code (§3511, §4700, or §5050);
- Designated as species of special concern by the CDFW;
- Plants or animals that meet the definitions of rare or endangered species under CEQA; or
- Plants considered by the CNPS to be "rare, threatened, or endangered in California" (Lists 1A, 1B, and 2).

Special status species with the potential to occur within the project site are summarized in **Table 4.3-2** and are discussed in detail below. Critical habitat in the vicinity of the project site is shown in **Figure 4.3-3**.





SOURCE: USFWS Critical Habitat Surveys of San Mateo County, 2005, 2010; "Montara Mountain, CA" USGS 7.5 Minute Topographic Quadrangle, T4S & 5S R5W & 6W, Unsectioned Area of Corral de Tierra, Mt. Diablo Baseline & Meridian; AES, 2013

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**Figure 4.3-3**  
Critical Habitat Map

**TABLE 4.3-2**  
SPECIAL STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

Species	Status	Habitat Description	Period of Identification	Area of Potential Occurrence in Study Area
<b>Plants</b>				
<i>Fritillaria liliacea</i> Fragrant fritillary	--/--/1B	Annual herb found often on serpentinite substrate in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grasslands at elevations from 3 to 410 meters (CNPS, 2013).	February-April	The coastal prairie, coastal scrub, and California annual grassland provide habitat for this species.
<b>Fish</b>				
<i>Oncorhynchus mykiss irideus</i> steelhead Central California Coast ESU	FT/--/--	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambed (Moyle, 2002).	Consult Agency	Denniston Creek downstream of the project site provides marginal and currently unoccupied habitat for this species.
<b>Amphibians</b>				
<i>Rana aurora draytonii</i> California red-legged frog	FT/CSC/--	Found in permanent and temporary pools of streams, marshes, and ponds with dense grassy and/or shrubby vegetation from 0 to 1,500 meters (NatureServe, 2011).	November – March (breeding) June - August (non-breeding)	San Vicente Creek, Denniston Creek, and the manmade reservoirs provide breeding habitat for this species. The riparian vegetation, California annual grassland, and coastal prairie provide upland habitat for this species.
<b>Reptiles</b>				
<i>Actinemys marmorata</i> Western pond turtle	--/CSC/--	Found in permanent ponds, lakes, streams, irrigation ditches, permanent pools, and intermittent streams. Requires aquatic habitats with suitable basking sites. Nest sites most often characterized as having gentle slopes less than 15 percent with little vegetation or sandy banks. Found from 0 to 1,430 meters (Jennings, 1994).	All year	San Vicente Creek, Denniston Creek, the intermittent drainages, and the manmade reservoirs provide breeding habitat for this species. The riparian vegetation, California annual grassland, coastal prairie provide upland habitat for this species.
<i>Thamnophis sirtalis tetrataenia</i> San Francisco garter snake	FE, FP/CE/--	Prefers grasslands or wetlands near ponds, marshes and sloughs. May overwinter in upland areas away from water (Californiaherps, 2011).	March-July	The seasonal wetlands, manmade reservoirs, and California annual grassland provide habitat for this species.



### 4.3 Biological Resources

Species	Status	Habitat Description	Period of Identification	Area of Potential Occurrence in Study Area
<b>Mammals</b>				
<i>Antrozous pallidus</i> Pallid bat	--/CSC/--	Found in grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests from 0 to 2,000 meters. The species is most common in open, dry habitats with rocky areas for roosting. Roosts also include cliffs, abandoned buildings, bird boxes, and under bridges (Harris, 2000).	All Year	The ornamental landscape trees and residential dwellings within the ruderal/disturbed areas and the trees within the riparian canopy provide roosting habitat for this species.
<i>Neotoma fuscipes annectens</i> San Francisco dusky-footed woodrat	--/CSC/--	Found in riparian areas along streams and rivers. Requires areas with a mix of brush and trees (NatureServe, 2011).	Year Round	The riparian vegetation and the creeks provide habitat for this species.

**FEDERAL:** United States Fish and Wildlife Service (USFWS, 2011)

FE Federally Endangered  
 FT Federally Threatened  
 CH Federally Designated Critical Habitat

**STATE:** California Department of Fish and Wildlife (CDFW, 2013)

CE California Listed Endangered  
 CR California Listed Rare  
 CT California Listed Threatened  
 CSC California Species of Special Concern

**CNPS:** California Native Plant Society (CNPS, 2013)

List 1B Plants Rare, Threatened, or Endangered in California and Elsewhere  
 List 2 Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

**Special Status Plants****Fragrant Fritillary (*Fritillaria liliacea*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

Fragrant fritillary is a perennial herb found in broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland at elevations from 60 to 1,300 meters. The blooming period for this species is from February through April. This species is known to occur in Alameda, Contra Costa, Monterey, Marin, San Benito, Santa Clara, San Francisco, San Mateo, Solano, and Sonoma counties (CNPS, 2013).

There is one CNDDDB record documented for this species within five miles of the project site (CDFW, 2013). The record is from 1931 and is located approximately 2.7 miles northeast of the project site (CNDDDB occurrence number 37). The record states that the exact location is unknown and that a site visit is needed. The coastal scrub, California annual grassland, and coastal prairie within the project site provide habitat for this species. This species was not observed during the May 16 and 17, 2011 and July 17, 2011 biological surveys of the project site. The biological surveys were conducted outside of the evident and identifiable blooming period for this species. This species has the potential to occur within the project site.

**Special Status Wildlife****Fish****Steelhead – Central California Coast ESU (*Oncorhynchus mykiss irideus*)**

Federal Status – Threatened, Critical Habitat

State Status – None

Steelhead-Central California Coast Evolutionary Significant Unit (ESU) is found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. This species spawns in streams with pool and riffle complexes. Cold water and a gravelly streambed are required for successful breeding (NMFS, 2013).

Critical habitat for the Central California Coast steelhead ESUs was originally designated on February 16, 2000. Designated critical habitat includes all river reaches and estuarine areas accessible to listed steelhead in coastal river basins from the Russian River to Aptos Creek, California (inclusive), and in the drainages of San Francisco and San Pablo Bays (Federal Register 2000). Also included are adjacent riparian zones, all waters of San Pablo Bay westward of the Carquinez Bridge, and all waters of San Francisco Bay from San Pablo Bay to the Golden Gate Bridge.

Designated critical habitat includes the stream channels within the designated stream reaches, and includes the lateral extent, as defined by the ordinary high-water line (33 CFR 329.11). In areas where the ordinary high-water line has not been defined, the lateral extent is defined by the bankfull elevation (70 FR 52488).

Designated critical habitat for the Central California Coast steelhead ESU was vacated pursuant to an April 30, 2002, court order. The court order remanded the critical habitat designations for 19 steelhead and salmon ESUs to NMFS for new rulemaking to re-designate critical habitat because of inadequate economic analysis. This assessment was completed and critical habitat for steelhead was re-designated by National Oceanic and Atmospheric Administration (NOAA) NMFS on August 12, 2005.

The primary constituent elements essential for the conservation of the Central California Coastal steelhead ESU are those sites and habitat components that support one or more life stages, including: (1) Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development; (2) Freshwater rearing sites with: (i) Water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; (ii) Water quality and forage supporting juvenile development; and (iii) Natural cover such as shade, submerged and overhanging large wood, log jams, beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks; (3) Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival; and (4) Estuarine areas free of obstruction and excessive predation with: (i) Water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between freshwater and saltwater; (ii) Natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels; and (iii) Juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation (70 FR 52488).

Designated critical habitat in Denniston Creek occurs from the outlet at 37.5033N, -122.4869W to the upstream endpoint at 37.5184N, -122.4896W (**Figure 4.3-3**). The portion of Denniston Creek that occurs within the project site is 0.11 mile north of the upstream extent of designated critical habitat. The project site does not occur within the designated critical habitat for this species.

In order to spawn, adult fish must enter Denniston Creek through Half Moon Bay Harbor. The harbor is located at the gateway to the watershed for anadromous fish and the building of the breakwater was completed in 1967. Although correlation is not the same as causation, the

breakwater construction coincides closely with the loss of documented significant anadromous runs in Denniston and makes this a prime suspect for the cause of this loss. Fresh water signal loss is consistent with fish not detecting a home channel entrance. The breakwater was designed to be permeable to flush pollutants, but this design mixing also contributes to diluting the freshwater signal from Denniston Creek, because Denniston Creek water now flows through both the structure and the harbor entrance, which reduces the attraction of fish to the harbor entrance between the breakwaters. This mixing also diffuses the chemical signals that salmonids use to home on a specific creek once inside the breakwater. This is probably the most significant factor that has caused the loss of the historical steelhead run in Denniston Creek.

The Denniston Creek dam is a complete barrier to upstream anadromous fish passage. Any fish observed above the dam are fish stocked by CDFW in the pond or remnant resident populations (or a combination of both), rather than juveniles directly from ocean run stocks. The portion of Denniston Creek from the dam downstream to the Pacific Ocean contains several culverts that are obstacles and/ or barriers to upstream anadromous fish migration (**Figure 4.3-2d, Photo 19**). Fish observed downstream of the dam have a greater likelihood of getting there by spilling over the dam than running upstream from the ocean because of these barriers and the lack of any observations of ocean-run salmonids since the mid 1960's.

The Denniston Creek channel is composed of low gradient flows with runs and shallow pools less than 12 inches deep and loose sand and shallow gravel substrate that provides only limited spawning potential within Denniston Creek between the dam and the Pacific Ocean (AES, 2013).

Therefore, the primary causes for lack of spawning in Denniston Creek are Half Moon Bay Harbor and breakwaters, existing barriers and obstacles in the creek bed, and lack of suitable habitat, and not water flows. Due to channel conformation and the small width of Denniston Creek, increased flows would not add any biologically significant usable fishery habitat for steelhead migration or spawning.

There are no historical or present anadromous fish resources documented in San Vicente Creek. A complete barrier to fish passage existed at the confluence of the Pacific Ocean and San Vicente Creek until it was removed in 2006. The existing diversion structure along San Vicente Creek is a barrier to fish passage upstream and downstream of the project site. The portion of San Vicente Creek from the diversion structure downstream to the Pacific Ocean contains several culverts that are obstacles to fish migration (**Appendix C**; AES, 2013). The channel is composed of shallow pools and loose sand that lacks gravel substrate required for spawning habitat (AES, 2013). San Vicente Creek is not listed as critical habitat for steelhead or any other special-status species.

There are three CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The nearest record is from 1999 and is located approximately 3.1 miles southeast of the project site within Frenchmans Creek (CNDDDB occurrence number 3). None of the occurrences are documented within Denniston Creek or San Vicente Creek. This species was not observed during the May 16 and 17, 2011, July 17, 2011, and November 13, 2013 biological surveys of the project site. This species does not occur within the portion of Denniston Creek located within the project site. This species does not occur within the portion of San Vicente Creek located within the project site and is not known to occur within San Vicente Creek.

### **Amphibians**

#### **California Red-Legged Frog (CRLF; *Rana aurora draytonii*)**

Federal Status – Threatened, Critical Habitat

State Status – Species of Concern

CRLF require aquatic breeding areas embedded within a matrix of riparian and upland dispersal habitats. Breeding aquatic habitats include pools and backwaters within streams, creeks, ponds, marshes, springs, sag ponds, dune ponds, lagoons, and artificial impoundments including stock ponds. The breeding period is from November to March. Beginning with the first rains of fall, CRLF may make overland excursions through upland habitats. Most of these overland movements occur at night. CRLF may move distances up to 1.6 kilometers throughout one wet season. CRLF rest and forage in riparian vegetation. CRLF disperse from their breeding habitat to forage and seek summer habitat if water is not available. Summer habitats include spaces under boulders or rocks and organic debris, such as downed trees or logs; industrial debris; and agricultural features, such as drains, watering troughs, abandoned sheds, or hay-ricks (USFWS, 2002). CRLF requires 11 to 30 weeks of permanent water for larval development (CDFW, 2013).

The USFWS designated approximately 1,636,609 acres of revised critical habitat in 50 units within 27 California counties for CRLF, effective August 16, 2010 (75 FR 12815-12959). The primary constituent elements essential to the conservation of the species include: (1) Space for individual and population growth and for normal behavior; (2) Food, water, air, light, minerals, or other nutritional or physiological requirements; (3) Cover or shelter; (4) Sites for breeding, reproduction, or rearing (or development) of offspring; and (5) Habitats that are protected from disturbance or are representative of the historical, geographical, and ecological distributions of a species.

The project site occurs within critical habitat for CRLF (**Figure 4.3-3**). The project site occurs within the 34,952-acre SNM-1, Cahill Ridge unit. SNM-1 contains the features that are essential

for the conservation of the species including the following primary constituent elements: aquatic habitat for breeding and non-breeding activities, and upland habitat for foraging and dispersal activities. SNM-1 was known to be occupied at the time of listing and is currently occupied. The unit contains high-quality permanent and ephemeral aquatic habitats consisting of ponds and streams surrounded by riparian and emergent vegetation that provides for breeding and upland areas for dispersal, shelter, and food (75 FR 12815-12959).

There are 18 CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). Two of the 18 occurrence are mapped within the vicinity of the project site. One occurrence is from 2006 and abuts the southern portion of the project site (CNDDDB occurrence number 976). The record states that six adult CRLF were captured in a pond with wetland vegetation surrounded by agriculture between Denniston Creek and San Vicente Creek. The other occurrence is from 2006 and abuts the southeastern portion of the project site (CNDDDB occurrence number 38). The record states that approximately five CRLF were heard calling and two were captured within manmade ponds along Denniston Creek. CRLF were identified in the reservoir during the most recent dredging activities in 2009-2010.

Denniston Creek, San Vicente Creek, the manmade reservoirs, and the riparian vegetation within the project site provide breeding and foraging habitat for this species. The project site provides overland movement for this species in habitats occurring within 1.6 kilometers of the aquatic and foraging habitat. This species was not observed during the May 16 and 17, 2011, July 17, 2011, and November 13, 2013 biological surveys of the project site. However, CRLF was observed in Denniston Reservoir during dredging activities done by the District under a CDFW Streambed Alteration Agreement (SAA) in 2009 and 2010. Maintaining Denniston Reservoir at a larger size would provide more edge effect for CRLF and therefore be beneficial to CRLF habitat.

## Reptiles

### Western Pond Turtle (WPT; *Actinemys marmorata*)

Federal Status – None

State Status – Species of Concern

WPT are found along ponds, marshes, rivers, streams, and irrigation ditches with abundant aquatic vegetation. WPT require aquatic habitats with suitable basking sites. Nest sites are often characterized as having gentle slopes less than 15 percent with little vegetation or sandy banks. WPT are found at elevations from sea level to 1,430 meters (Jennings, 1994). The WPT prefer pools with rocky or muddy bottoms in woodland, forest, or grassland areas. During summer droughts, WPT aestivate in burrows in soft bottom mud (CaliforniaHerps, 2011). Period of identification for the WPT is March through October. WPT are known throughout California west of the Sierra-Cascade crest, absent from desert regions except along the

Mojave River and its tributaries (Jennings, 1994).

There is one CNDDDB record documented for this species within five miles of the project site (CDFW, 2013). The record is from 2005 and is located approximately 4.6 miles northeast of the project site (CNDDDB occurrence number 1223). The record states that one WPT was captured in a pond along San Mateo Creek comprised of oak, bay, pine woodland, and riparian areas. Denniston Creek, San Vicente Creek, the manmade reservoirs, and the riparian vegetation within the project site have potential habitat for this species. This species was not observed during the May 16 and 17, 2011, July 17, 2011, and November 13, 2013 biological surveys of the project site. This species has the potential to occur within the project site.

**San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*)**

Federal Status – Endangered

State Status – Endangered, Fully Protected

The SFGS is typically found in the vicinity of freshwater marshes, ponds, and slow moving streams. This species prefers dense cover and water depths of at least one foot (CDFW, 2013) and nearby grassland to overwinter in upland areas away from water (CaliforniaHerps, 2011). This species is found in San Mateo County and the extreme northern portion of Santa Cruz County (CDFW, 2013). However, SFGS have not been observed in the project area and sightings in the vicinity are of mixed reliability (WRA, 2005).

There are 13 CNDDDB records documented for SFGS within five miles of the project site (CDFW, 2013). The data states that the occurrence information is considered sensitive and the location data is suppressed. Denniston Creek, San Vicente Creek, and the manmade reservoirs provide aquatic habitat for this species. The California annual grassland in the vicinity of the creeks provide upland overwintering habitat for this species. This species was not observed during the May 16 and 17, 2011, July 17, 2011, and November 13, 2013 biological surveys of the project site. This species has the potential to occur within the project site.

**Mammals**

**Pallid Bat (*Antrozous pallidus*)**

Federal Status – None

State Status – Species of Concern

Pallid bats are found in grassland, shrubland, and woodland habitats from sea level up to mixed conifer forests through 2,000 meters. This species commonly occurs in open, dry habitats with rocky areas for roosting. Other roosts include cliffs, abandoned buildings, bird boxes, and under bridges. This species forages over open ground during the dawn and dusk hours. Pallid bats establish daytime roosts in caves, crevices, mines, large hollow trees, and unoccupied

buildings. Pallid bats mate from October through February and most young are born from April through July (Harris, 2000). This species occurs in arid and semi-arid regions across much of the American west, along the Pacific Coast from Canada and Mexico (Arizona-Sonora Desert Museum, 2006-2009).

There are no CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The trees within the riparian vegetation, the eucalyptus grove, and the ruderal/disturbed areas of the project site provide roosting habitat for this species. This species was not observed during the May 16 and 17, 2011, July 17, 2011, and November 13, 2013 biological surveys of the project site. This species has the potential to occur within the project site.

### **San Francisco Dusky-Footed Woodrat (*Neotoma fuscipes annectens*)**

Federal Status – None

State Status –Species of Concern

The San Francisco dusky-footed woodrat is found in riparian areas along streams and rivers. This species requires areas with a mix of brush and trees. This species is known to occur in Alameda, Contra Costa, San Mateo, Santa Clara, Santa Cruz counties (NatureServe 2011).

There are no CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The riparian vegetation along Denniston Creek and San Vicente Creek provide habitat for this species. This species was not observed during the May 16 and 17, 2011, July 17, 2011, and November 13, 2013 biological surveys of the project site. This species has the potential to occur within the project site.

### ***Migratory Birds and Birds of Prey***

Fish and Game Code 3503.5 protects all birds in the orders Falconiformes and Strigiformes (collectively known as birds of prey). The MBTA protects migratory birds and other birds of prey. Migratory birds and other birds of prey have the potential to nest within the trees within the riparian vegetation, the eucalyptus grove, and the ruderal/disturbed areas. No birds were observed nesting within the project site during biological surveys. Migratory birds and other birds of prey have the potential to nest within the project site.

## **4.3.5 IMPACT ANALYSIS**

### **Thresholds of Significance**

The significance criteria established by CEQA state that an impact to biological resources would be considered significant if the proposed project:



- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified or listed in local or regional plans, policies, or regulations, or by the CDFW, USFWS, or NMFS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

### Summary of Habitat Impacts

The Proposed Project will temporarily impact a total of 5.254 acres of terrestrial habitat and 1.38 acres of aquatic habitat. Temporary impacts refer to any areas that will be disturbed by construction of the Proposed Project, but will be returned to their pre-construction status after disturbance. Permanent impacts will result in permanent conversion of the habitat type after development is complete. Approximately 3.37 acres of terrestrial habitats and 0.07 acres of aquatic habitats will be permanently impacted. **Table 4.3-3** provides a summary of the terrestrial and aquatic habitat types impacted by the Proposed Project.

**TABLE 4.3-3**  
HABITAT TYPES BY ACREAGES IMPACTED BY THE PROPOSED PROJECT

Habitat Types	Potential Temporary Impacts <sup>1</sup>	Permanent Impacts <sup>2</sup>
<b>Terrestrial</b>		
California Annual Grassland	0.23	0.00
Coastal Prairie	0.08	0.00
Coastal Scrub	1.94	0.00
Riparian Vegetation	0.28	0.00
Eucalyptus Grove	0.05	1.06
Agriculture	0.004	0.00
Ruderal/Disturbed Areas	2.67	2.31
<b>Subtotal</b>	<b>5.254</b>	<b>3.37</b>
<b>Aquatic<sup>3</sup></b>		
Perennial Creek (San Vicente Creek at POD)	0.00	0.04
Perennial Creek (Unnamed at Bridgeport Dr.)	0.01	0.00
Intermittent Drainage	0.01	0.00
Reservoir (Denniston Reservoir the POD)	0.94	0.03
Seasonal Wetland	0.00	0.00
<b>Subtotal</b>	<b>1.38</b>	<b>0.07</b>
<b>Total</b>	<b>6.214</b>	<b>3.44</b>

<sup>1</sup>These acreages represent the temporary impacts from the Proposed Project. Once completed, each area will be restored.

<sup>2</sup>These acreages represent only the habitat which will be permanently lost through construction of the Proposed Project.

<sup>3</sup>Impacts to the aquatic habitats are approximate. The final acreages of aquatic impacts will be determined through the Sections 404, 401, and 1600 permitting processes.

Source: AES, 2013

## Impact Analysis and Mitigation Measures

### IMPACT 4.3-1. Development of the Proposed Project has the potential to impact special status species.

The project site provides potential habitat for one special status plant, eight special status wildlife, and migratory bird species and other birds of prey. These species could potentially be impacted by the Proposed Project. In accordance with Section 7 of the FESA, a Biological Assessment will be prepared and submitted to the USFWS and NMFS to initiate FESA consultation for impacts to federally listed species due to likelihood for the need to obtain a 404 permit from the USACE. As described in detail below, any potential impacts to endangered species will be reduced to a less than significant level with the incorporation of **Mitigation Measures 4.3-1a** through **4.3-1ii**.

### ***Special Status Plants***

Because the May 16 and 17, 2011, July 17, 2011, and November 13, 2013 biological surveys were conducted outside of the blooming period for fragrant fritillary, this species may have been present and not detected within the project site. Construction activities associated with the Proposed Project have the potential to impact fragrant fritillary through the trenching activities associated with the installation of pipeline within the coastal scrub, California annual grassland, and coastal prairie habitats. With implementation of the measures identified for this species in **Mitigation Measures 4.3-1a** through **4.3-1c**, including conducting a focused botanical survey within the evident and identifiable blooming period immediately prior to actual construction and, if present, salvaging and relocating any individuals prior to commencement of construction activities, impacts to fragrant fritillary would be reduced to **Less than Significant with Mitigation**.

**Mitigation Measure 4.3-1a:** A qualified botanist shall conduct a focused botanical survey within the blooming period (February through April) for fragrant fritillary prior to commencement of construction activities within the coastal scrub, California annual grassland, and coastal prairie habitats. A letter report shall be prepared and submitted to the CCWD following the preconstruction survey to document the results. Should no fragrant fritillary be observed, then no additional mitigation will be required.

**Mitigation Measure 4.3-1b:** Should fragrant fritillary be observed during the focused botanical survey, the botanist shall contact the CCWD and the CDFW within one day following the preconstruction survey to report the findings. If feasible, a ten-foot buffer shall be established around the species using construction flagging prior to commencement of construction activities.

**Mitigation Measure 4.3-1c:** Should avoidance of fragrant fritillary, a CNPS-listed 1B species protected under the Native Plant Protection Act, be infeasible, the qualified botanist would salvage and relocate the individuals to an area comprised of suitable habitat in the vicinity of the project site that would not be impacted by the Proposed Project.

### ***Special Status Wildlife***

#### **Central California Coast Steelhead - Central California Coast ESU (*Oncorhynchus mykiss irideus*)**

Additional diversion of water from San Vicente Creek could result in impacts to water availability and habitat quality for salmonids, should they occur downstream. However, as discussed previously, there are no historical or present salmonoid fish resources documented within San Vicente Creek. A complete barrier to fish passage existed at the confluence of the Pacific Ocean and San Vicente Creek until it was removed in a restoration effort by the County of San Mateo in 2006. Despite this restoration effort, the portion of San Vicente Creek from the diversion structure site downstream to the Pacific Ocean contains several culverts that remain

significant obstacles to fish migration, in addition to passage obstructions at the mouth of the stream entering the Pacific Ocean. The existing diversion structure along San Vicente Creek is a barrier to fish passage upstream and downstream of the project site (**Figure 4.3-2c: Photograph 11**). Habitat within the channel is composed of shallow pools and loose sand that lacks gravel substrate required for spawning habitat within San Vicente Creek (AES, 2013). The stretch of San Vicente Creek that runs through the project site does not support suitable habitat for these species.

Additional diversion of water from Denniston Creek could result in impacts to water availability and habitat quality for salmonids, if they were to use habitat below Denniston Creek dam in the future. However, as discussed previously, there is evidence that anadromous fish runs have been blocked in Denniston Creek for decades and that native anadromous runs have been extirpated in the system. During average winter base flows, the creek channel is composed predominantly of low gradient reaches with runs/glides less than 12 inches deep, very few shallow pools measuring less than 20 inches deep, and loose sand and small gravel substrate, which provides only limited spawning potential within Denniston Creek between the dam and the Pacific Ocean (AES, 2013). Half Moon Bay Harbor itself may also present a barrier impassible by anadromous fish. The following measures would reduce impacts to these fish and/or their habitat to **Less than Significant with Mitigation**.

**Mitigation Measure 4.3-1d:** All work within the bed or on the banks of either San Vicente or Denniston Creeks shall be restricted to low-flow periods, generally between July 1 and October 15. If the channel is dry, construction may occur outside of this period.

**Mitigation Measure 4.3-1e:** In the event the channels are not sufficiently dry to allow work within them, water shall be diverted around the stream reach where the diversion structure is to be installed using coffer dams or other CDFW-approved methods.

**Mitigation Measure 4.3-1f:** Best management practices (BMPs), including but not limited to, silt screens and sediment curtains, shall be placed downstream of the construction site to prevent transport of sediments from the project area to downstream reaches of the stream.

**Mitigation Measure 4.3-1g:** To the extent feasible, the stream banks shall be returned to original grade slope after construction, and riparian vegetation shall be replaced consistent with CDFW-approved methods. Bank stabilization measures, such as planting of riparian trees, the use of biodegradable jute netting, and/or hydro seeding with a native seed mix, shall be implemented to reduce potential for erosion and sedimentation within the stream channel.

**Mitigation Measure 4.3-1h:** The new POD shall be screened for CRLF (see **Mitigation Measure 4.3-1i**).

**California Red-Legged Frog (CRLF; *Rana aurora draytonii*) and San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*)**

The CRLF are found to occur in the vicinity of the proposed project site which also provides suitable habitat for SFGS. Aquatic foraging and breeding habitat for CRLF and SFGS would be temporarily impacted during removal of the existing diversion structure, construction of the new diversion structure and pump station on San Vicente Creek, modifications/installation of a pump station at the manmade off stream Upper San Vicente Reservoir, installation/upgrade of the pipeline within the riparian vegetation surrounding San Vicente Creek, and maintenance activities associated with removal of sediment to expand the manmade reservoir on Denniston Creek. Construction activities associated with the nonnative annual grassland could temporarily impact up to approximately 0.23 acres of upland dispersal habitat for CRLF and SFGS during construction of the pipeline from San Vicente Creek to the existing Denniston Creek pump station. The seasonal wetland near the pipeline route, which could provide habitat for these species, is avoided by project design. Long-term operation of the Proposed Project is likely to benefit CRLF, as maintaining Denniston Reservoir at a larger size would provide more edge effect for CRLF and therefore be beneficial to CRLF habitat.

The Proposed Project is likely to affect, but with mitigation is not likely to adversely affect, CRLF and may affect SFGS. Consultation with USFWS for potential impacts to CRLF and SFGS will be required during the CWA Section 404 permitting process for the installation of the new diversion on San Vicente Creek and possibly for the ongoing and future maintenance and operations activities for the dredging at Denniston Reservoir. An Incidental Take Permit (ITP) may also be required from CDFW for the SFGS; although actual take is unlikely to occur as none have been observed in the project impact area. The mitigation measures identified below in **Mitigation Measures 4.3-1i** through **4.3-1x** shall be implemented, and any additional mitigation measures required by the USFWS through Section 7 consultation or by an ITP from CDFW if needed for the SFGS, as well as mitigation measures described in a SAA, will be required for both the new POD on San Vicente and the dredging at Denniston Reservoir. The following measures shall be implemented to reduce impacts to CRLF and SFGS to **Less than Significant with Mitigation**.

**Mitigation Measure 4.3-1i:** Removal of the existing diversion structure and construction of the new diversion structure and pump station within San Vicente Creek and within the riparian vegetation surrounding San Vicente Creek, installation of the pipeline within the riparian vegetation surrounding San Vicente Creek, and maintenance activities associated with dredging activities to maintain Denniston Reservoir shall be limited to the period of September 1 through October 15, which is after CRLF larval development and before the breeding season.

**Mitigation Measure 4.3-1j:** The proposed replacement of the existing pipeline and the installation of the new pipeline within the nonnative annual grassland and all other

habitats within 1.6 kilometers of aquatic features shall be limited to the period of March 15 to October 15.

**Mitigation Measure 4.3-1k:** An approved biological monitor shall be present on site during all construction activities.

**Mitigation Measure 4.3-1l:** New intake structures shall be equipped with a barrier to prevent CRLF juveniles or tadpoles or SFGS from being entrained. The barriers shall be screened with no greater than five millimeter mesh diameter.

**Mitigation Measure 4.3-1m:** To the degree cofferdams are needed and flows will be bypassed during construction, flow shall be restored to the affected stream immediately upon completion of work at that location. Flow diversions shall be done in a manner that shall prevent pollution and/or siltation and which shall provide flows to downstream reaches of Denniston Creek and San Vicente Creek.

**Mitigation Measure 4.3-1n:** During dredging activities at Denniston Reservoir, any decrease in water surface elevation (WSE) shall be controlled such that WSE does not change at a rate that increases turbidity to Denniston Creek that could be deleterious to aquatic life and/or the likelihood of stranding aquatic life in the manmade reservoir.

**Mitigation Measure 4.3-1o:** At least 14 days prior to the onset of any construction or maintenance activities, the applicant shall submit the name(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities shall begin until the applicant has received written approval from the USFWS/CDFW that the biologist(s) is qualified to conduct the work.

**Mitigation Measure 4.3-1p:** Upon completion of the Section 7 consultation process, the USFWS will consider if an appropriate relocation site exists in the event a need arises to relocate either of the species. The applicant would be required to obtain a biological opinion with an incidental take statement from the USFWS in the event that the USFWS determines that the Proposed Project would result in take of CRLF. If the USFWS approves moving CRLF, the approved biologist will be allowed sufficient time to move them from the work site before work activities begin. Close biological monitoring (see Mitigation Measure 4.3-1k above) and encouraging the species to leave the work area of their own accord would be the preferred method. Only USFWS-approved biologists shall participate in activities associated with the capture, handling, and monitoring of CRLF. Any SFGS found to occur shall be allowed to leave the work area of their own accord, and shall be monitored as practical by the biologist to ensure they do not reenter the work area. Furthermore, if SFGS are observed, exclusion fencing shall be considered in consultation with CDFW and USFWS to prevent the return of the SFGS.

**Mitigation Measure 4.3-1q:** Prior to commencement of any groundbreaking activities, all construction personnel will receive training on listed species and their habitats by an approved biologist. The importance of these species and their habitat will be described to all employees as well as the minimization and avoidance measures that are to be implemented as part of the Proposed Project. An educational brochure containing color

photographs of all listed species in the work area(s) will be distributed to all employees working within the project site. The original list of employees who attend the training sessions will be maintained by the applicant and be made available for review by the USFWS and the CDFW upon request.

**Mitigation Measure 4.3-1r:** All BMPs prescribed by the San Mateo County planning office for work within sensitive habitat areas will be implemented to the full extent such as eliminating the use of herbicide or pesticide in a riparian area, protecting native vegetation, minimizing soil compaction, seed or plant temporary vegetation for erosion control, protect down slope drainage courses, streams, and storm drains with hay bales, temporary drainage swales, silt fences, berms or storm drain inlet filters (County of San Mateo Public Works).

**Mitigation Measure 4.3-1s:** Construction equipment used to remove the existing diversion structure and construct the new diversion structure and pump station along San Vicente Creek and the additional and ongoing dredging of Denniston Reservoir shall be located adjacent to aquatic habitats in upland areas with the least amount of riparian vegetation, to minimize disturbances to the maximum extent practicable.

**Mitigation Measure 4.3-1t:** All vehicles associated with construction and excavation activities will be clustered within designated staging areas at the end of each work day or when not in use to minimize habitat disturbance and water quality degradation.

**Mitigation Measure 4.3-1u:** Before vehicles move from the staging areas at the start of each work day or before they return to this location at the end of each work day, the onsite biological monitor will check under the vehicles and their tires to ensure no listed species are utilizing the equipment as temporary shelter. In addition, the qualified biologist shall inspect the vicinity of the anticipated work area that will support the construction equipment. Any vehicle parked within the project site for more than 15 minutes shall be inspected by the biological monitor before it is moved to ensure that CRLF or SFGS have not moved under the vehicle.

**Mitigation Measure 4.3-1v:** Fifteen miles per hour speed limits shall be enforced while driving in the project site, including transporting excavated material to the disposal site for the dredging material associated with Denniston Reservoir to the previously identified and used disposal sites within the eucalyptus grove.

**Mitigation Measure 4.3-1w:** Prior to deposition of fill at the disposal site associated with the eucalyptus grove, the biological monitor shall inspect the areas to verify that CRLF or SFGS are not present. If any CRLF or SFGS are present, the excavated material shall not be placed until the individuals leave the area or unless the qualified biologist is permitted by the USFWS to capture and relocate the CRLF.

**Mitigation Measure 4.3-1x:** Because CRLF and SFGS may take refuge in cavity-like and den-like structures such as pipes and may enter stored pipes and become trapped, all construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods will be either securely capped prior to storage or

thoroughly inspected by the biological monitor for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way.

**Western Pond Turtle (WPT; *Actinemys marmorata*)**

WPT has the potential to occur in the vicinity of the project site. Construction of the new diversion structure and pump station and removal of the existing structure along San Vicente Creek, installation of the pipeline within the riparian vegetation surrounding San Vicente Creek and Denniston Creek, and maintenance activities associated with sediment removal within the manmade reservoir along Denniston Creek could impact aquatic habitat for WPT. Construction activities associated with the nonnative annual grassland could impact upland movement for WPT. Implementation of measures identified in **Mitigation Measures 4.3-1y** through **4.3-1bb**, including daily preconstruction surveys, environmental awareness training, and presence of a biological monitor during construction and maintenance activities would reduce potential impacts to WPT to **Less than Significant with Mitigation**.

**Mitigation Measure 4.3-1y:** Construction equipment used to remove the existing diversion structure and construct the new diversion structure and pump station along San Vicente Creek and to dewater and dredge the manmade reservoir along Denniston Creek shall be located adjacent to aquatic habitats in upland areas with the least amount of riparian vegetation, to the maximum extent practicable.

**Mitigation Measure 4.3-1z:** Prior to commencement of any groundbreaking activities, all construction personnel will receive training on WPT. The training will be incorporated as described for CRLF and SFGS.

**Mitigation Measure 4.3-1aa:** Before vehicles move from the staging areas at the start of each work day or before they return to this location at the end of each work day, the biological monitor will check under the vehicles and their tires to ensure no WPT are utilizing the equipment as temporary shelter. In addition, the qualified biologist shall inspect the vicinity of the anticipated work area that will support the construction equipment.

**Mitigation Measure 4.3-1bb:** Prior to commencement of daily construction or excavation activities, the biological monitor will conduct a preconstruction survey for WPT. If WPT is present, the biologist will be allowed sufficient time to move them from the work site before work activities begin.

**Pallid Bat (*Antrozous pallidus*)**

Potential roosting habitat is present in the vicinity of the Proposed Project footprint for the pallid bat. If active roosts are present, tree removal associated with construction of the Proposed Project could impact bat species. With the implementation of **Mitigation Measures 4.3-1cc** through **4.3-1dd**, impacts to roosting bats would be reduced to less than significant. **Less than Significant with Mitigation**.



**Mitigation Measure 4.3-1cc:** If any trees are proposed for removal, a qualified wildlife biologist shall conduct a focused survey for roosting bats no more than 14 days prior to the anticipated date of tree removal. Trees that contain cavities will be thoroughly investigated for evidence of bat activity. A letter report shall be prepared and submitted to the applicant following the preconstruction survey to document the results. If the preconstruction survey determines that there is no evidence of roosts, then no additional mitigation will be required so long as construction commences within 14 days prior to the preconstruction survey.

**Mitigation Measure 4.3-1dd:** If special status bats are found roosting within any trees slated for removal, the areas shall be demarcated by exclusionary fencing and avoided until a qualified biologist can assure that the bats have vacated.

#### **San Francisco Dusky-Footed Woodrat (*Neotoma fuscipes annectens*)**

San Francisco dusky-footed woodrat has the potential to occur within the project site. Installation of the pipeline within the riparian vegetation surrounding San Vicente Creek and Denniston Creek could impact this species. With the implementation of **Mitigation Measure 4.3-1ee through Mitigation Measure 4.3-1ff**, impacts to San Francisco dusky-footed woodrat would be reduced to less than significant. **Less than Significant with Mitigation.**

**Mitigation Measure 4.3-1ee:** A qualified biologist shall conduct a preconstruction survey to determine if active woodrat nests occur within a ten-foot buffer of areas to be cleared of riparian vegetation within 14 days prior to commencement of construction activities. Similar surveys shall be conducted in and immediately adjacent to the use of the existing dredge disposal sites. A letter report shall be prepared and submitted to the applicant following the preconstruction survey to document the results. If the preconstruction survey determines that there is no evidence of nests, then no additional mitigation will be required so long as construction commences within 14 days prior to the preconstruction survey.

**Mitigation Measure 4.3-1ff:** If woodrat nests are present and determined to be occupied, each woodrat shall be relocated to suitable habitat in consultation with the CDFW. If young are found within the nest, the nest material shall remain in its existing condition and a ten-foot buffer around the nest shall be established. No work shall occur within the ten-foot buffer until a qualified biologist determines that the young have been weaned (up to six weeks from birth), at which point the biologist should dismantle and relocate the nest to an area with suitable habitat that would not be impacted by the Proposed Project.

***Migratory Birds and Other Birds of Prey***

Potential nesting habitat is present within the Proposed Project footprint for migratory bird species and other birds of prey. If active nests are present in the vicinity of the Proposed Project site, potential disruption of nesting migratory birds and other birds of prey during construction could result in nest abandonment or mortality. Likewise, increased human activity and traffic, elevated noise levels, and operation of machinery could also impact birds if their nests or roosts are located within the vicinity of development areas. Riparian vegetation removal along either creek and dredging associated with the expansion of the manmade reservoir within Denniston Creek, the restoration of the creek channel within the existing riparian area, riparian vegetation removal for the installation of the diversion structure along San Vicente Creek, and trenching activities associated with the Proposed Project could result in abandonment of the nest or loss of eggs and young, which would be a violation of the MBTA. The nests and eggs of any bird are protected from take pursuant to California Fish and Game Code section 3503. With the incorporation of the mitigation measures identified for nesting birds in **Mitigation Measures 4.3-1gg** through **4.3-1ii**, including preconstruction surveys, impacts to nesting birds would be reduced to less than significant. **Less than Significant with Mitigation.**

**Mitigation Measure 4.3-1gg:** Should any trees be anticipated for removal, they should be removed between September 16 and March 14, which is outside of the nesting bird season (the nesting bird season is between March 15 and September 15).

**Mitigation Measure 4.3-1hh:** Should removal be required outside of the dates identified in 4.3-1ff then a qualified biologist shall conduct a preconstruction survey within 14 days prior to commencement of any construction activities associated with the Proposed Project should construction be anticipated to commence during the nesting season for birds of prey and migratory birds (between March 15 and September 15). A letter report shall be prepared and submitted by the applicant following the preconstruction survey to document the results. If surveys show that there is no evidence of nests, then no additional mitigation will be required so long as construction commences within 14 days prior to the preconstruction survey.

**Mitigation Measure 4.3-1ii:** If any active nests are located within the vicinity of the project site, a buffer zone shall be established around the nests. A qualified biologist shall monitor nests weekly during construction to evaluate potential nesting disturbance by construction activities. The biologist should delimit the buffer zone with construction tape or pin flags within 100 feet of the active nest and maintain the buffer zone until the end of breeding season or the young have fledged. Guidance from the CDFW will be requested if establishing a 100-foot buffer zone is impractical. A letter report shall be prepared and submitted to the applicant following the preconstruction survey to document the results.

### **Critical Habitat**

The approximately 36.58-acre project site lies within designated critical habitat unit SNM-1 for CRLF. Approximately 6.214 acres of the 36.58-acre project site would be temporarily impacted and 3.44 acres would be permanently impacted by the Proposed Project. Critical habitat unit SNM-1 for CRLF comprises a total of 34,952 acres. Trenching activities associated with the replacement of existing pipelines and the installation of the new pipelines would be temporary and all habitats would be restored back to their existing condition. All wetland habitat is being avoided by design. Maintaining Denniston Reservoir at a larger size would provide more edge effect for CRLF and therefore be beneficial to CRLF habitat. Based on the limited size of critical habitat affected by the Proposed Project, much of which would be temporary, the increased edge effect for CRLF, and the measures required to reduce project-related impacts to CRLF during construction activities and consultation with the USFWS which will occur, impacts to critical habitat is considered **Less Than Significant**.

### **Sensitive Habitats**

**IMPACT 4.3-2: Development of the Proposed Project has the potential to impact sensitive habitat including the riparian vegetation of San Vicente Creek and Denniston Creek.**

The CDFW and the County General Plan consider riparian habitat to be a sensitive biological community. The Proposed Project could temporarily impact up to 0.28 acres of riparian vegetation, although there are no permanent impacts to riparian habitat. Construction of the POD on San Vicente Creek will permanently impact up to 0.04 acres of aquatic habitat in San Vicente Creek, and dredging in Denniston Reservoir will permanently impact up to 0.03 acres of aquatic habitat.

Impacts would occur to Denniston Creek through maintenance activities associated with removal of sediment to expand the manmade reservoir upstream and adjacent to the existing reservoir. Impacts to San Vicente Creek will occur through construction of the new diversion structure and pump station and removal of the existing structure within the channel and the surrounding riparian vegetation, and installation/upgrade of the pipeline within the riparian habitat.

Impacts may also occur to riparian habitat along San Vicente Creek through the San Vicente Creek preferred alternative (see **Section 4.8**, Hydrology and Water Quality). With a San Vicente Creek preferred alternative, stream flow has the potential to be considerably reduced downstream from the POD. However, impacts will be less than significant as San Vicente Creek will continue to receive natural run-off downstream of the diversion, groundwater from the water table downstream of the diversion, and year-round coastal fog that provides a source of water to the riparian vegetation downstream of the diversion. According to Balance Hydrologics, "San Vicente Creek is a gaining stream, which indicates that there is excess

groundwater; even when the streambed appears dry, there is likely underflow below the stream” (Balance, 2014; **Appendix H**). Although the diversions will reduce the amount of surface water in San Vicente Creek, riparian vegetation is maintained year-round by groundwater or stream underflow, which will not be affected by the Proposed Project.

As discussed in **Section 4.8**, Hydrology and Water Quality, in a Denniston Creek preferred diversion scenario, diversions above the existing condition are minimal in all water year types, and there is not likely to be a large decrease in available water to downstream riparian habitat. Riparian habitat is similar to that on San Vicente Creek, and would be maintained by natural run-off downstream of the POD, groundwater input from the water table, and year-round coastal fog. As discussed by Balance Hydrologics, Inc., the “overall groundwater table is not likely to be significantly affected by the Proposed Project due to this combination of factors” and the “riparian corridor along Denniston Creek will not likely be significantly affected by the Proposed Project: (Balance, 2014; **Appendix H**). Therefore, impacts to riparian vegetation on Denniston Creek as a result of decreased water availability are less-than-significant.

A Section 1602 SAA shall be obtained from CDFW and the appropriate County permit under the LCP shall be obtained for impacts to riparian habitat, and all conditions and requirements of the permits shall be adhered to. Water diversion is an allowable use under the LCP. The in-stream impacts may also require a 404 permit from USACE. At minimum, the policies identified within the sensitive habitat component of the County’s LCP and the General Plan shall be followed and impacts to riparian habitat and perennial creeks shall be restored, replaced, or enhanced consistent with **Mitigation Measures 4.3-2a** through **4.3-2d** and any additional permit terms as specified.

With mitigation, impacts to riparian habitat are **Less than Significant with Mitigation**.

**Mitigation Measure 4.3-2a:** The applicant shall comply with the policies identified within the sensitive habitat component of the LCP and the General Plan by obtaining a CDP from the County

**Mitigation Measure 4.3-2b:** The applicant shall comply with a Riparian Restoration and Monitoring Plan (RRMP). The RRMP shall include performance criteria and development standards for development permitted within the riparian vegetation.

**Mitigation Measure 4.3-2c:** Riparian habitat impacts shall be replaced or enhanced in the area of impact or, if infeasible, within reasonable proximity to the project site as identified in the RRMP. Examples of restoration include but are not limited to re-contouring of the creek to offset the impacts from the current inefficient diversion and the related undercutting of the stream channel which has occurred, the replanting of native vegetation to offset any unavoidable removal of trees or understory and possible measures designed to avoid further erosion and the removal of debris from both creeks

and their associated riparian habitat. If additional measures are required in the State or Federal Permitting process then they shall also be followed and included in the RRMP.

**IMPACT 4.3-3: Development of the Proposed Project has the potential to impact waters of the United States.**

Construction activities associated with the Proposed Project would impact an estimated 0.04 acres of potential waters of the United States through the removal of the existing diversion structure and the construction of the new diversion structure and pump station within the manmade reservoir along San Vicente Creek. Maintenance activities associated with expanding the manmade reservoir along Denniston Creek would impact an estimated 0.03 acres, however, dredging activities within waters of the United States are not subject to Section 404 of the Clean Water Act (33 CFR 232.2(3)(i-iii)). Impacts to waters of the United States subject to USACE jurisdiction are considered preliminary until the USACE verifies the findings. The exact acreage of jurisdictional wetlands would be determined through the Section 404 Clean Water Act process upon completion of finalized design of in-stream structures. The applicant shall obtain a Section 404 Clean Water Act Permit from the USACE for impacts to jurisdictional wetlands and waters of the United States and comply with the mitigation measures identified in the Hydrology and Water Quality Section to prevent discharge of pollutants to surface waters during construction. This shall include complying with the State's National Pollution Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Permit) issued by the RWQCB and a Section 401 Permit for impacts to waters of the state. In addition, as a condition of the Section 404 Clean Water Act Permit, permanent impacts to jurisdictional waters of the United States shall be mitigated on site, as identified in **Mitigation Measures 4.3-3a** and **4.3-3b**. With the obtaining of required permits and following the mitigation outlined here, impacts to jurisdictional waters of the United States would be considered **Less than Significant with Mitigation**.

**Mitigation Measure 4.3-3a:** Unavoidable impacts to waters of the United States shall be mitigated consistent with the existing agreements between the USACE and the USEPA with an emphasis on for onsite restoration to ensure a no net loss to waters of the United States and of the state.

**Mitigation Measure 4.3-3b:** Avoid the 0.01 acre seasonal wetland during construction of the pipeline.

**IMPACT 4.3-4: Removal and disposal of the dredge material has the potential to impact biological resources.**

Two dredge disposal sites already identified as part of the District easements shall be the site of

the disposal of the dredged material located at the eucalyptus groves. Use of these sites has the potential to impact biological resources because this area provides potential habitat for the CRLF, possibly the SFGS and the dusky wood rat. In addition the material could contain contaminants that could seep into the soil. Random sampling of dredge materials from the Denniston Reservoir was conducted by Erler & Kalinowski, Inc. in April 2012 on behalf of the Peninsula Open Space Trust (Cabrillo Farms) (EKL, 2013). The samples were tested for the following metal constituents, all of which tested within normal ranges (ranges from USGS Professional Paper 1270; USGS, 1984): Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc. However, prior to dredging, all soils will be sampled and tested for the above-listed constituents and other hazardous materials. The following measures shall be implemented to reduce impacts to CRLF and SFGS to **Less than Significant with Mitigation**.

**Mitigation Measure 4.3-4a:** Prior to dredging, soils to be removed will be sampled and tested for contaminants. The samples shall at a minimum be tested for the following constituents: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc. If sampling of the dredged materials indicates that soils may constitute hazardous materials, then they shall be disposed of in accordance with corresponding California statutory regulations at an approved dredge disposal site. Recycleworks.org is a program of San Mateo County and is a guide for building contractors on how to properly dispose of hazardous materials.

**Mitigation Measure 4.3-4b:** Dredging shall generally be from the dam side and along the road in order to minimize impacts to the surrounding environment.

**Mitigation Measure 4.3-4c:** To the degree feasible the dredging shall be done in a manner that restores an upstream channel of Denniston creek coming into the reservoir.

**Mitigation Measure 4.3-4d:** All dredged material will be disposed of at one of the two on-site disposal areas if sampling indicates that soils do not constitute hazardous materials.

### **Wildlife Movement and Migratory Corridors**

The Proposed Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native residents or migratory wildlife corridors or impede the use of native wildlife nursery sites. Impacts would be considered **Less than Significant**.

### **Tree Ordinance**

**IMPACT 4.3-5: Development of the Proposed Project has the potential to impact trees.**

The project site contains trees identified within the Significant Tree Ordinance (San Mateo County, 2010). A permit is required for the removal of any indigenous or exotic tree with a circumference of at least 38 inches when measured at four feet vertically above the ground or immediately below the lowest branch, whichever is lower, as identified in the Significant Tree Ordinance (San Mateo County, 2010). If any trees are anticipated for removal, the applicant shall submit an arborist report with the required information to obtain a permit and comply with all conditions in the permit, as identified within **Mitigation Measure 4.3-5**. With mitigation, impacts to protected trees would be considered less than significant. **Less than Significant with Mitigation.**

**Mitigation Measure 4.3-5:** If trees covered by the County Tree Ordinance are required to be removed, the applicant shall comply with the policies identified within the San Mateo County Significant Tree Ordinance, including an arborist report and specific mitigation including replacement planting. No trees over 38 inches are currently anticipated to be removed under this project.

## 4.4 CULTURAL AND PALEONTOLOGICAL RESOURCES

### 4.4.1 INTRODUCTION

This section addresses the potential for the Proposed Project to impact cultural and paleontological resources. **Section 4.4.2** presents an overview of the regional cultural setting, as well as research methods and results of the study. The relevant federal, State, and local regulations are outlined in **Section 4.4.3** and project-related impacts and recommended mitigation measures are presented in **Section 4.4.4**.

### 4.4.2 ENVIRONMENTAL SETTING

A complete discussion of the cultural resources environmental setting is provided within the Cultural Resources Study (bound under separate cover).

#### **Pre-historic and Historic Resources**

Prehistorically, inhabitants of the Coast Ranges of California settled near lakes, along the shoreline, near major coastal and inland streams, and near large coastal estuaries such as Humboldt, San Francisco, and Monterey bays (Moratto, 1984). The San Francisco Bay Region encompasses an area of approximately 50 kilometers (km) square, and includes hill and valley country as well as the largest estuarine system in California. Principal water features include San Pablo, San Francisco, and Suisun bays, Carquinez Strait, and numerous channels and tidelands.

The Bay Area, and San Francisco in particular, underwent significant transformations after gold was discovered in Coloma in 1848. With the onset of the rush for gold that year, San Francisco had a population of about 500 to 600, but by the end of the following year, it had increased to nearly 25,000 (Wollenberg, 2002). The city had come to be an urban center, as well as a center of influence over the social and economic affairs of much of the American west.

San Mateo County, being somewhat geographically isolated from San Francisco, experienced slower growth into the twentieth century. San Mateo County was split from the southern portion of San Francisco County in 1854. San Mateo is Spanish for Saint Mathew. Governor Alvarado granted Candelario Mirimontes land in modern Half Moon Bay in 1841, and Half Moon Bay was developed around the Rancho Miramontes. The settlements and village that grew there became known as Spanishtown due to Spanish being the dominant language. Within 20 years, other Europeans began to settle the area. Around that time Henry Bidwell, nephew of the pioneer John Bidwell, became the first postmaster of the town. The post office was named Half Moon Bay after the shape of the coastline. Over the coming years, Half Moon Bay replaced



Spanishtown as the name of the emerging town (Hoover *et al.*,1990). Half Moon Bay is the oldest town in San Mateo County, having its roots in the 1840's.

#### **Archival and Literature Search**

A records search for the project site was conducted at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS), housed at California State University, Sonoma, on May 12, 2011 (NWIC #10-1079). The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of archaeological and historic records and reports for a 16 county area that includes San Mateo.

The NWIC records search verified that two prehistoric cultural resources or historic properties have been reported within the project area. These resources are P-41-068 and P-41-069, or Nelson 415 and 416 as they were originally recorded. These two sites are prehistoric shell mounds recorded by N.C. Nelson during the first intensive survey of archaeological sites in the Bay Area between 1906 and 1908 initiated through the University of California, Berkeley. Their locations were reported in Nelson's 1909 publication "San Francisco Bay Shellmounds" and the NWIC listed their locations as approximate. Further, a 1982 survey located probable shell midden remnants (P-41-239) in a resource south of the project area in agricultural land, which is a likely candidate for the westernmost Nelson Shellmound numbered 415.

The historic maps: 1859 Rancho Corral de Tierra Plat, 1896 USGS San Mateo Sheet, 1915 USGS San Mateo Quadrangle and the 1942 US Army Corps of Engineers Tactical Map, San Mateo Quadrangle were consulted and no historic properties or structures were found corresponding to extant structures.

A total of 11 previously recorded cultural resources have been recorded within the one kilometer area studied surrounding the project area. Additionally, 27 previous studies have been conducted within the same area along with nine overview studies.

#### **Native American Consultation**

Analytical Environmental Services (AES) initiated consultation by notifying the Native American Heritage Commission (NAHC) on May 2, 2011. The NAHC was asked to search their Sacred Lands Inventory File and to submit a list of local Native American contacts that may have information regarding the project area. The NAHC responded on June 10, 2011 with the results of the sacred lands file and Native American contacts. The record search failed to identify known sacred Native American sites within or adjacent to the project site. However, the NAHC provided a list of five Native American individuals and organizations that potentially have knowledge of the Proposed Project site. The individuals and organizations identified by the NAHC were contacted by letter on July 26, 2011 to solicit their comments and concerns

regarding the project. To date, none of the individuals or organizations contacted expressed any concern or provided specific information regarding Native American resources near the project site.

##### ***Field Survey***

A field examination of the property and proposed pipeline alignments was conducted on May 16 and 17, July 28, 2011, and November 13, 2013, which resulted in the discovery of no new cultural resources. However, two nearby previously recorded resources identified through research could not be found and no surface manifestations of these resources were present within the project site.

The proposed pipeline alignments from the San Vicente point of diversion (POD) to the existing pump station that were examined were within or adjacent to existing improved gravel or dirt roads. Road-cuts and grading provided for excellent ground visibility in those areas; however, in all other areas ground visibility was reduced to near 10 percent due to dense vegetation. The improved gravel roads contained significant portions of imported gravels and significant land-form modification. The Denniston Pump Station and both Upper and Lower San Vicente Reservoir areas all showed evidence of significant land form modification, as would be expected in the creation and continued maintenance of the roads and reservoirs.

A concentrated effort was made to find the two prehistoric resources identified through the NWIC record search. The NWIC listed the locations as approximated based upon the 1909 mapping. It is likely that the degree of error in mapping during the 1909 study was large enough to have erroneously plotted the resources. No evidence was found that would lead to the conclusion that these cultural resources are present within the current project area.

The survey focused on the areas that were previously undisturbed within the project site and on areas where cultural resources had previously been mapped. Areas that were already developed and have no evidence of past cultural resource discoveries were not surveyed to the same extent. Therefore, the cultural resources survey did not cover the proposed Booster Pump Station location that occurs within the footprint of the existing Denniston booster pump station or the Bridgeport Pipeline location, as those areas are completely developed and no ground surface is visible beneath the pavement. However, cultural records searches included those areas and did not reveal any evidence of cultural resources.

##### **Paleontological Resources**

Paleontological resources are the traces or remains of prehistoric plants and animals. Such remains often appear as fossilized or petrified skeletal matter, imprints or endocasts, and reside in sedimentary rock layers.

The presence of paleontological resources at any particular site is influenced by geological composition resulting from formation processes occurring over long periods of time. Fossils typically reside in sedimentary layers, and may or may not become mineralized dependent upon the mineral composition within their depositional environment.

As described in **Section 4.5**, Geology and Soils, the region's geologic history is characterized by strike-slip faults, tectonic uplift and tilting, and moderate erosion. Soils within the project site consist mostly of sandy loams derived from quartz diorite and granitic alluvium. Significant fossil resources generally do not occur within the very shallow sediments such as those that occur within the project site.

The coastal shoreline of the San Francisco Bay has receded approximately 25 km in the last 10,000 to 15,000 years due to rising sea levels (caused by melting glaciers). Prior to 10,000 years before present (BP), the Sacramento River flowed through the Golden Gate and across the now-submerged continental shelf to empty into the ocean west of the Farallon Islands. By 8,000 years BP marine waters were inundating San Francisco Bay and the water level had risen by about 110 meters, submerging many coastline sites (Moratto, 1984). It is estimated that the sea level rose well over one meter per 1,000 years (Moratto, 1984). This fluctuation in sea level may have contributed to the deposition of paleontological resources along the coast of San Mateo County. Paleontological resources and prehistoric fossils have been discovered in the exposed bluffs above the ocean bench along the coast. These resources generally consist of molluscan fossils from the Pleistocene Period (San Mateo County, 1986).

A search of the University of California Museum of Paleontology's (UCMP) database indicates that 553 paleontological specimens have been reported in San Mateo County (UCMP, 2013). Areas along exposed bluffs above the ocean bench along the coast have the highest frequency of fossils in the County (San Mateo County, 1986).

In summary, indicators of significant paleontological resources within the project site and immediate vicinity are absent in the sources consulted. The geologic formation upon which the project site is located has not produced significant paleontological specimens of scientific consequence and is unlikely to do so in the future.

### 4.4.3 REGULATORY SETTING

#### Federal

Section 106 of National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of their undertakings on historic properties and affords the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The

Council's implementing regulations, "Protection of Historic Properties," are found in 36 Code of Federal Regulations (CFR) Part 800. The goal of the Section 106 review process is to offer a measure of protection to sites which are determined eligible for listing on the National Register of Historic Places (NRHP). The criteria for determining NRHP eligibility are found in 36 CFR Part 60. Amendments to the Act (1986 and 1992) and subsequent revisions to the implementing regulations have, among other things, strengthened the provisions for Native American consultation and participation in the Section 106 review process. While federal agencies must follow federal regulations, most projects by private developers and landowners do not require this level of compliance. Federal regulations only come into play in the private sector if a project requires a federal permit or if it uses federal money.

#### ***Antiquities Act***

Passed in 1906, the Antiquities Act prohibits the collection, destruction, injury, or excavation of "any historic or prehistoric ruin or monument, or any object of antiquity" that is situated on federal land without permission of the appropriate land management agency. The Act also provides for the criminal prosecution, including fines and imprisonment, for individuals who commit one or more of the acts described above. While neither the Antiquities Act nor its implementing regulations (found at 43 CFR 3) explicitly mention fossils or paleontology, the inclusion of "object[s] of antiquity" in the Act has been interpreted to extend to paleontological resources by many federal agencies. As such, projects involving federal lands require permits for paleontological resource evaluation and mitigation efforts that involve excavation, collection, etc.

#### ***National Environmental Policy Act***

The National Environmental Policy Act's (NEPA's) requirement that federal agencies take all practical measures to "preserve important historic, cultural, and *natural aspects* of our national heritage" has been widely interpreted to cover paleontological resources potentially impacted by federal projects (emphasis added). Thus, whenever possible, mitigation measures are recommended to lessen impacts to paleontological resources as a result of federal projects.

#### **State**

Under the California Environmental Quality Act (CEQA), historical resources are considered part of the environment (Public Resources Code, §§ 21060.5, 21084.1). An *historical resource* "includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California (Public Resources Code, §§ 21084.1, 5020.1, subd. (j))."

### **California Historic Register**

The California Register of Historic Resources (CRHR) was created in 1992 (Public Resources Code, § 5024.1.) and is administered by the State Historical Resources Commission according to regulations implemented January 1, 1998 (Cal. Code Regs., tit. 14, § 4850 et seq.). The California Register includes historical resources that are listed automatically by virtue of their appearance on, or eligibility for, certain other lists of important resources (e.g., NRHP). The California Register incorporates historical resources that have been nominated by application and listed after public hearing. Also included are historical resources listed as a result of the State Historical Resources Commission's evaluation in accordance with specific criteria and procedures.

CEQA requires consideration of potential impacts to resources that are listed, or qualify for listing, on the California Register, as well as resources that are significant but may not qualify for listing.

The 2000 CEQA Guidelines (Section 15064.5) define four cases in which a property may qualify as a significant historical resource for the purposes of CEQA review:

- A. The resource is listed in or determined eligible for listing in the CRHR. Section 5024.1 defines eligibility requirements and states that a resource may be eligible for inclusion in the CRHR if it:
  - 1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
  - 2. Is associated with the lives of persons important in our past;
  - 3. Embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic values; or
  - 4. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, a significant property must also retain integrity. Properties eligible for listing in the CRHR must retain enough of their historic character to convey the reason(s) for their significance. Integrity is judged in relation to location, design, setting, materials, workmanship, feeling, and association. Properties that are listed in or eligible for listing in the NRHP are considered eligible for listing in the CRHR, and thus are significant historical resources for the purpose of CEQA (Public Resources Code section 5024.1[d][1]).

- B. The resource is included in a local register of historic resources, as defined in section 5020.1(k) of the Public Resources Code, or is identified as significant in a historical

resources survey that meets the requirements of section 5024.1(g) of the Public Resources Code (unless the preponderance of evidence demonstrates that the resource is not historically or culturally significant).

- C. The lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record.
- D. The lead agency determines that the resource may be a historical resource as defined in Public Resources Code section 5020.1(j) or 5024.1.

Under the CEQA Guidelines, an effect is considered significant if a project will result in a substantial adverse change to the resource (PRC Section 21084.1). Actions that would cause a substantial adverse change to a historical resource include demolition, replacement, substantial alteration, and relocation. When it is determined that a project may cause a substantial adverse change, alternative plans or measures to mitigate the effects to the resource(s) must be considered.

#### ***Native American Consultation***

SB-18 Tribal Consultation; Government Code Section 65352.3 (Senate Bill [SB] 18) requires local governments to consult with California Native American Tribes identified by the California NAHC regarding proposed local land use planning decisions and prior to the adoption or amendment of a general plan or specific plan. The purpose of this consultation is to preserve or mitigate impacts to cultural places.

#### ***California Health and Safety Code***

Section 7050.5 of the California Health and Safety Code states that it is a misdemeanor to knowingly disturb a human grave. In the event that human graves are encountered, work should halt in the vicinity and the County Coroner should be notified immediately. At the same time, an archaeologist should be contacted to evaluate the situation. If human remains are of Native American origin, the Coroner must notify the NAHC within 24 hours of this identification.

### **Local**

#### ***San Mateo County General Plan***

The General Plan contains the following policies related to historical and archaeological resources applicable to the Proposed Project:

#### ***Historical and Archaeological Resources***

##### **5.15 Character of New Development**

- Encourage the preservation and protection of historic resources, districts and landmarks on sites which are proposed for new development.

5.20 Site Survey

- Determine if sites proposed for new development contain archaeological/paleontological resources. Prior to approval of development for these sites, require that a mitigation plan, adequate to protect the resource and prepared by a qualified professional, be reviewed and implemented as part of the project.

5.21 Site Treatment

- Encourage the protection and preservation of archaeological sites.
- Temporarily suspend construction work when archaeological/paleontological sites are discovered. Establish procedures which allow for the timely investigation and/or excavation of such sites by qualified professionals as may be appropriate.
- Cooperate with institutions of higher learning and interested organizations to record, preserve, and excavate sites.

***San Mateo County Local Coastal Program***

The Local Coastal Program (LCP) contains the following policies relating to cultural resources applicable to the Proposed Project:

***Locating and Planning New Development***

1.24 Protection of Archaeological/Paleontological Resources

- Based on County Archaeology/Paleontology Sensitive Maps, determine whether or not sites proposed for new development are located within areas containing potential archaeological/paleontological resources. Prior to approval of development proposed in sensitive areas, require that a mitigation plan, adequate to protect the resources and prepared by a qualified archaeologist/paleontologist be submitted for review and approval and implementation as part of the project.

**4.4.4 IMPACT ANALYSIS**

**Thresholds of Significance**

CEQA *Guidelines* Section 15064.5 defines historic resource as a resource (1) listed on, or determined to be eligible by the State Historic Resources Commission for listing on, the CRHR; (2) listed in a local register of historic resources or as a significant resource in a historical resource survey; or (3) considered to be “historically significant” by a lead agency as supported by substantial evidence in the record.

Impacts to cultural resources would be considered significant if implementation of the Proposed Project would:

- Cause a substantial adverse change in the significance of a historic resource as defined in PRC 21083.2 and CEQA Guidelines Section 15064.5;
- Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to CEQA Guidelines Section 15064.5;
- Disturbance or destruction of a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

CEQA *Guidelines* 15064.5 defines “substantial adverse change” as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings.

PRC Section 21083.2 defines “unique archaeological resource” as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria: (1) that it contains information needed to answer important scientific research questions and that there is demonstrable public interest in that information; (2) that it has a special and particular quality, such as being the oldest of its type or the best available example of its type; or (3) that it is directly associated with a scientifically recognized important prehistoric or historic event or person.

### Potential Direct and Indirect Impacts

#### **IMPACT 4.4-1. Development of the Proposed Project may impact previously unidentified cultural resources or may disturb human remains.**

While unlikely, there is a possibility of encountering previously unknown archaeological resources within the Proposed Project site. In the event that future undertakings inadvertently unearth buried archaeological material, such as flaked stone, historic debris, or human remains, the following mitigation shall be undertaken. Implementation of the mitigation measures presented below will ensure that impacts to cultural resources as a result of the Proposed Project are **Less than Significant with Mitigation**.

**Mitigation Measure 4.4-1a:** Should any buried archaeological material, such as flaked stone, historic debris, or human remains be inadvertently discovered during ground-disturbing activities, work should stop in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop treatment measures in consultation with appropriate agencies.



**Mitigation Measure 4.4-1b:** If human remains are discovered during project construction, work will stop at the discovery location and any nearby area reasonably suspected to overlie human remains (Public Resources Code, Section 7050.5). The San Mateo County coroner will be contacted to determine if the cause of death must be investigated. If the coroner determines that the remains are of prehistoric Native American origin, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the NAHC (Public Resources Code, Section 5097). The coroner will contact the NAHC. The most likely descendants (MLD) of the deceased will be contacted, and work will not resume until the appointed MLD has made a recommendation to the landowner or the person responsible for the excavation work for means of treating and disposing of, with appropriate dignity, the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98. Work may resume if NAHC is unable to identify a descendant or the descendant fails to make a recommendation within 48 hours.

## 4.5 GEOLOGY AND SOILS

### 4.5.1 INTRODUCTION

This section addresses the potential for the Proposed Project to result in impacts associated with geology and soils. Following an overview of the environmental setting in **Section 4.5.2** and the relevant regulatory setting in **Section 4.5.3**, project-related impacts and recommended mitigation measures are presented in **Section 4.5.4**.

### 4.5.2 ENVIRONMENTAL SETTING

#### Regional Setting

The project site is situated within the Southern Coast Ranges, which are part of the greater Coast Ranges geomorphic province. This geomorphic province is characterized by northwest-trending valleys and ridges which were formed via a series of folds and faults that resulted from the collision of the Farallon and North American tectonic plates, as well as strike-slip faulting along the San Andreas Fault Zone. The Southern Coast Ranges are bounded by the Pacific Ocean to the west, San Francisco Bay to the north, the Central Valley to the east, and the Transverse Ranges to the south.

#### Site Topography

The project site is located on sloping terrain along the foothills of Montara Mountain, which is situated in the northern section of the Santa Cruz Mountain Range. The Bridgeport Pipeline project site runs along Bridgeport Drive, which is approximately 80 feet above mean sea level (amsl) in the northwest end and decreases to approximately 40 feet amsl at its termination with Coral Reef Avenue 0.5 miles to the southeast. Elevations along the northern San Vicente and Denniston site range from approximately 100 feet amsl, rising from the southeast to the northwest to approximately 180 feet amsl. Steep uphill slopes are located to northeast of the project site, while lesser downhill gradients are found to the southwest where the foothills meet the Half Moon Bay Terrace Formation and the coast beyond. As noted in **Section 4.8**, Hydrology and Water Quality, marine terraces and coastal valleys extend between the ocean and the crest of Montara Mountain, two miles to the east and over 1,800 feet higher. The marine terraces are dissected by streams of small watersheds, originating on steep slopes of the mountain. The steep canyons and ravines of the upper watersheds change abruptly to broad flat-bottomed and steep-walled lower valleys. The valleys are filled with unconsolidated alluvial and coastal terrace deposits to depths of up to more than 100 feet above the canyon bottoms. These deposits are largely coarse- and medium grained sand eroded from granitic rocks of Montara Mountain (Balance Hydrologics, 2002). The area's fractured, deeply weathered geology allows for substantial infiltration of drainage into underlying aquifers (Balance

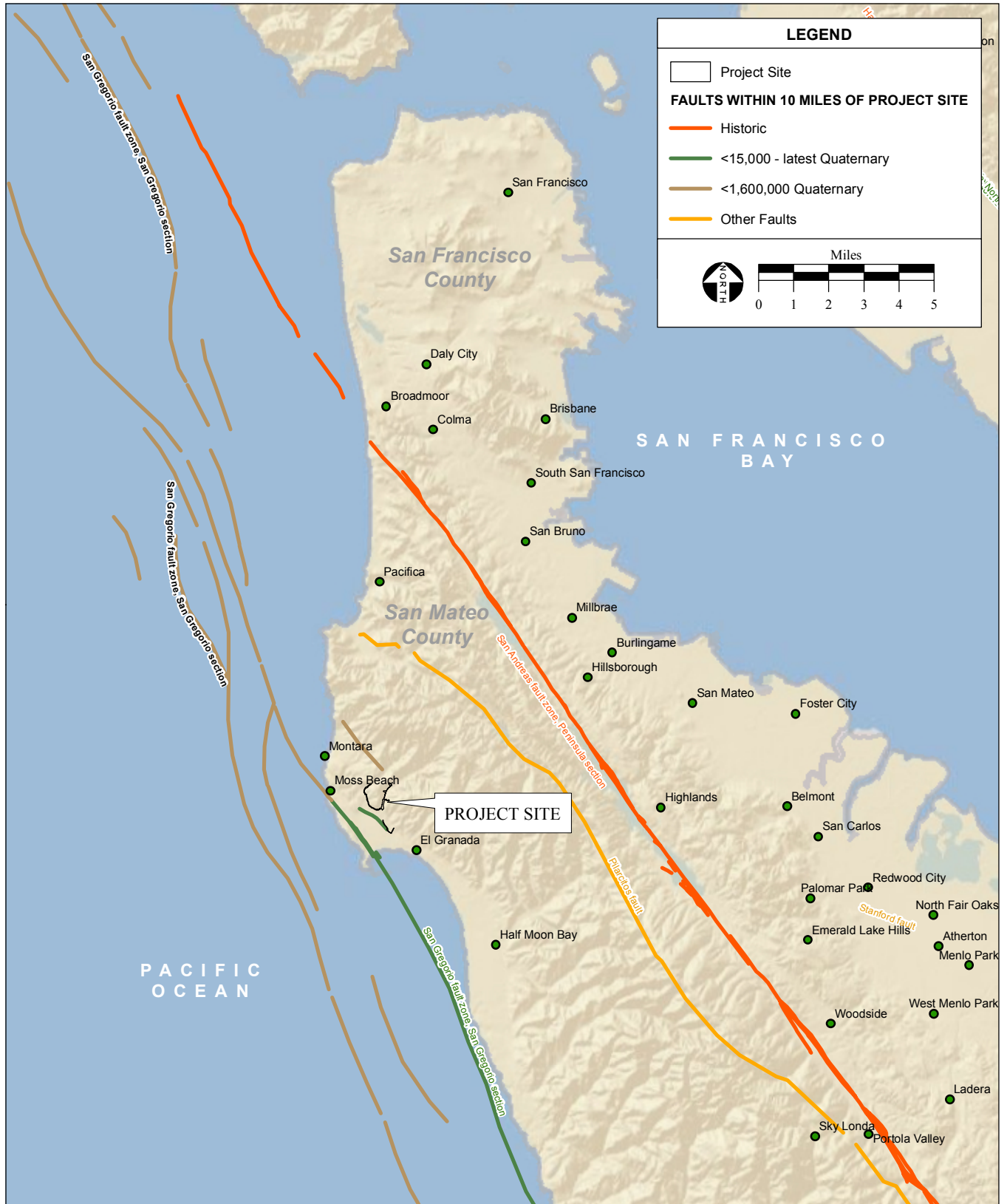
Hydrologics, 2012; **Appendix E**). Please see **Section 4.8**, Hydrology and Water Quality, for more information.

### **Regional Seismicity and Fault Zones**

Active faults are defined as those that have shown seismic activity within the past 11,000 years and are classified as Holocene faults by the United States Geological Survey (USGS) (CGS, 2010). The USGS definition, adopted by the California Geological Survey (CGS), defines active faults as faults showing signs of activity up to the beginning of the Quaternary age (1.6 million years ago). The San Gregorio fault zone is a major fault which transects the vicinity of the project site (**Figure 4.5-1**). This late-Holocene active dextral slip fault is believed to be capable of producing a magnitude seven earthquake. The Pilarcitos fault zone is part of the San Gregorio fault system and is located approximately 3.7 miles east of the project site. There is also the Serra fault zone, which is approximately 6.5 miles from the project site. The northwest-striking front thrust Serra fault zone is part of the San Andreas fault system, which spans approximately 810 miles along the coast of California (USGS, 1994).

### ***Seismic Shaking Intensity***

A common measure of earthquake intensity and effects due to ground shaking is the Modified Mercalli Intensity (MMI) Scale. The range of MMI values and a description of intensity factors are displayed in **Table 4.5-1**. The MMI values for intensity range from I to XII, with intensity descriptions ranging from an event not felt by most people (I) to nearly total damage (XII). Between these two extreme ranges, intensities that range from IV to XI have the potential to cause moderate to significant structural damage.



SOURCE: USGS Earthquake Hazards Program, 2007; AES, 2013

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**Figure 4.5-1**  
Regional Fault Locations

**TABLE 4.5-1**  
MODIFIED MERCALLI INTENSITY SCALE

<b>Intensity Value</b>	<b>Intensity Description</b>	<b>Average Peak Acceleration</b>
I.	Not felt except by a very few persons under especially favorable circumstances.	< 0.0015g
II.	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	< 0.0015g
III.	Felt quite noticeably indoors, especially on upper floors of buildings, but many persons do not recognize it as an earthquake. Standing cars may rock slightly. Vibration similar to the passing of a truck. Duration estimated.	< 0.0015g
IV.	During the day felt indoor by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably.	0.015g-0.02g
V.	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.	0.03g-0.04g
VI.	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.	0.06g-0.07g
VII.	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving cars.	0.10g-0.15g
VIII.	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving cars disturbed.	0.25g-0.30g
IX.	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.50g-0.55g
X.	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (sloped) over banks.	> 0.60g
XI.	Few, if any, masonry structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 0.60g
XII.	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 0.60g

Note: <sup>a</sup> g is gravity = 9.8 meters per second squared.  
Source: USGS, 2013a

The Richter Scale is a measure of magnitude of an earthquake's seismic energy release, with higher numerical values for stronger earthquakes and the effects associated with each level.

The relationship between an earthquake's magnitude (Richter) and intensity (MMI) is shown in **Table 4.5-2**.

**TABLE 4.5-2**  
APPROXIMATE RELATIONSHIP BETWEEN EARTHQUAKE MAGNITUDE AND INTENSITY

Richter Scale Magnitude	Maximum Expected Intensity (MMI) Scale	Distance Felt (Approximate Miles)
3.0 – 3.9	I – III	15
4.0 – 4.9	IV – V	30
5.0 – 5.9	VI – VII	70
6.0 – 6.9	VII – VIII	125
7.0 – 7.9	IX - X	250

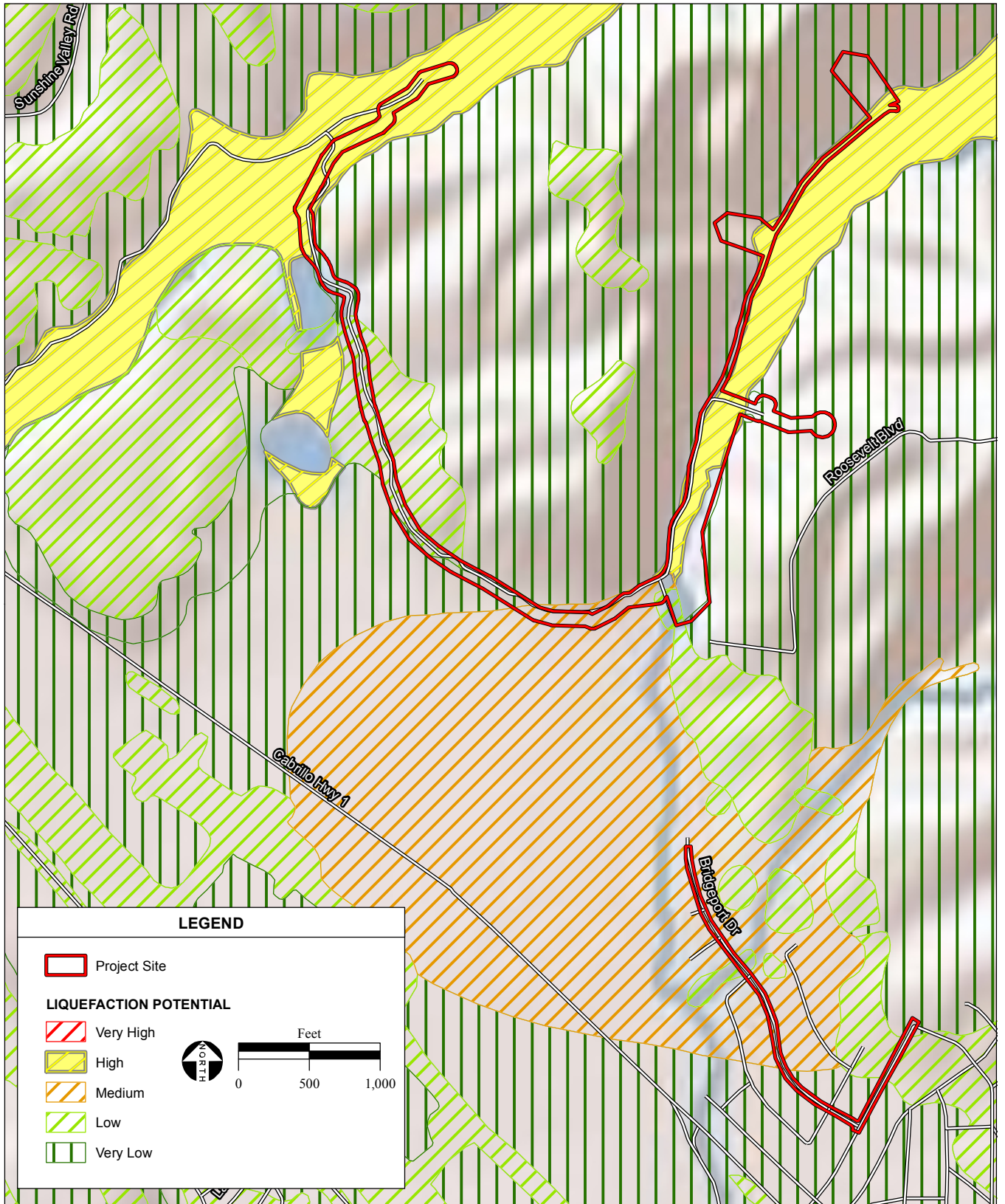
Source: USGS, 2013b

**Figure 4.5-2** is a probabilistic seismic hazard map that shows the potential hazards of earthquakes that could occur in California. This map is probabilistic due to the inherent uncertainties of the size, location and the resulting ground motion effects. The seismic hazard map is expressed in terms of the probability of exceeding a certain ground motion (how many times the acceleration of gravity). For example, if a location has a ten-percent probability of exceedance in 50 years map, then there is an annual probability of one in 475 of being exceeded each year (CGS, 2008).

Ground motion probabilities are dependent upon site specific soil conditions, which CGS Seismic Hazard Maps classified for three types of soils: firm rock, soft rock, and alluvium. There is a 10 percent probability that the peak horizontal acceleration experienced at the site would exceed 0.477 gravity (g) from a seismic event in 50 years (CGS, 2008). The ground-shaking probabilities have associated average peak acceleration rates that correspond to MMI rating between VIII and IX (refer to **Table 4.5-1**).

### ***Liquefaction, Slope Instability and Surface Rupture Potential***

Areas susceptible to landslides are comprised of weak soils on sloping terrain. Landslides can be induced by weather, such as heavy rains, or strong seismic shaking events. The project site area contains a variety of slopes (0 to 75 percent slopes) and is susceptible to landslides. The hillside along the east side of the project side is comprised of steeper slopes and has a higher susceptibility to landslides. The two stream courses and watersheds are within a geologic formation dominated by granitic soils. There are three basic watershed types along the San Mateo Coast, dependent on the geologic formation underlying them: Granitic; cauck; and



SOURCE: USGS Open-File Reports 00-444 and 2006-1037; California Geological Survey, 9/2009; ABAG, 2001; AES, 2013

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**Figure 4.5-2**  
Earthquake Hazards

normal coastal stream watersheds. The project site is within a granitic-dominated geologic watershed area (Balance Hydrologics, 2002). The bed, banks, and floodplain of Denniston Creek where it travels through the valley are classified as Farallone coarse sandy loam. This soil type is described as seeped, coarse sandy loam on top of coarse sands that are found on gentle slopes. The USGS classifies this area's liquefaction susceptibility as very high. Thus, during earthquakes and large storm events these soils can liquefy, which would cause damage to manmade structures. Special building permits and surveys may be required to build in this area (TRC Essex, 2006).

### ***Subsidence and Settlement***

Seismic settlement is the compaction of soil materials caused by ground-shaking or the extraction of underground fluids (water, oil, gas). Settlement can be caused by liquefaction or densification of silts and loose sands as a result of seismic loading. Such settlement may range from a few inches to several feet, and be controlled in part by bedrock surfaces (which prevent settlement) and old lake, slough, swamp, or stream beds which settle readily. Static settlement can occur through increased loading of the surface or subsurface materials, such as that imposed by foundations for structures. Dewatering for excavation and foundation construction can cause settlement of drying subsurface materials if water formed part of the support for the surface soils.

### ***Surface Fault Rupture***

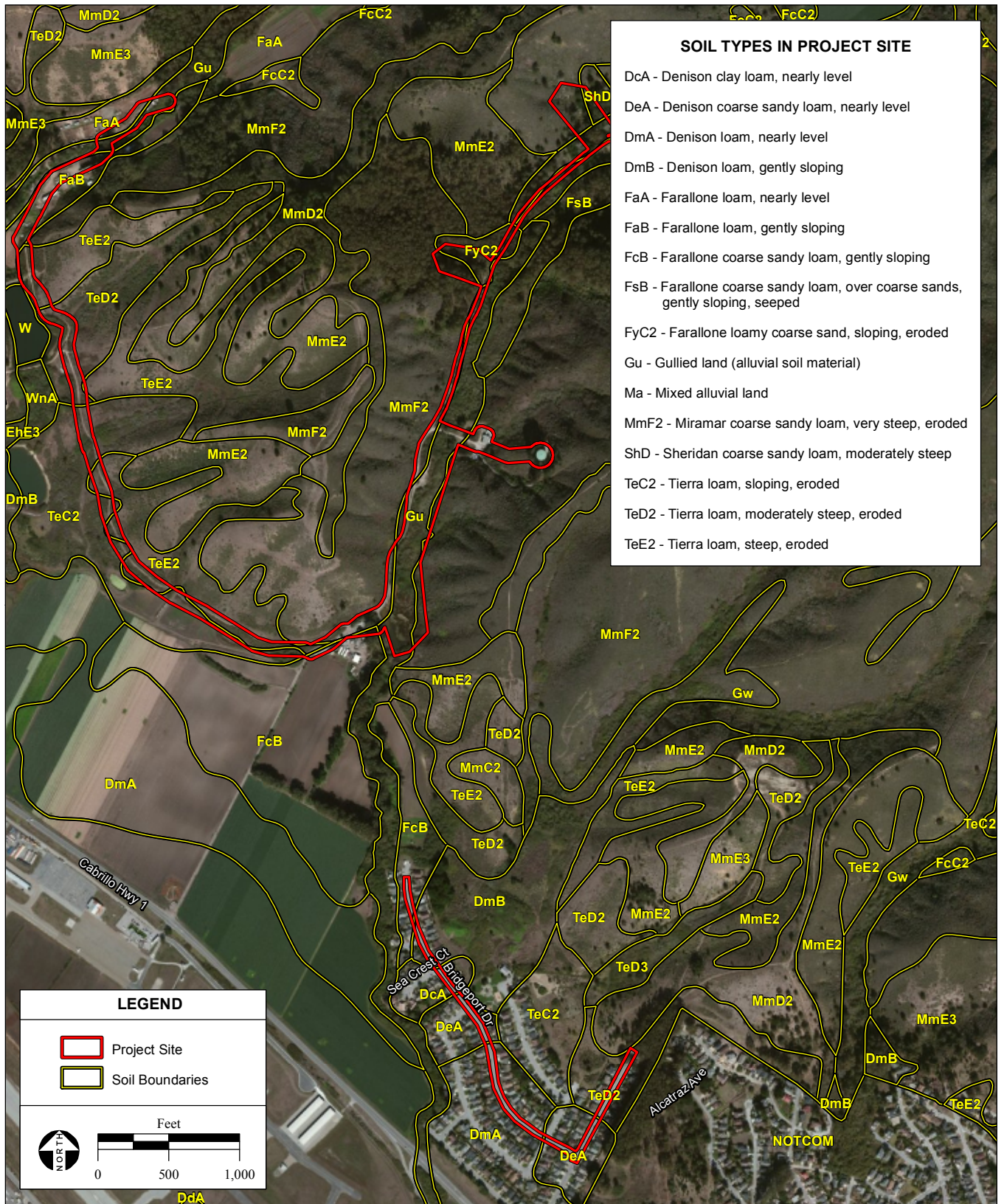
Surface ground rupture along faults is generally limited to a linear zone a few meters wide. Though the project site is not located within an Alquist-Priolo Earthquake Fault Zone, several active faults have been mapped in the vicinity of the project site by the CGS or USGS. These faults are not within the project site, nor will the Proposed Project result in the construction of buildings that would be susceptible to failure in the event of surface fault rupture.

## **Soil Resources**

### ***Soil Types***

Soil types and their distribution in the project area are depicted in **Figure 4.5-3** and were identified through a review of maps provided by the Natural Resources Conservation Service (NRCS). With the exception of urbanized areas where soils typically consist of engineered fill, the NRCS soil characteristics describe native, undisturbed soils. A summary of the soil characteristics for the major map units found on the project site is provided in **Table 4.5-3**.





SOURCE: USDA NRCS Soil Survey Geographic (SSURGO) database for San Mateo Area, California, 7/2010; USGS Aerial Photograph, 6/30/2008; AES, 2013

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**Figure 4.5-3**  
Soils Map

**TABLE 4.5-3**  
PROJECT SITE SOILS

Map Unit Symbol(s)	Map Unit Name	Expansiveness	Erosion Susceptibility
DmB, DcA, DeA, DmA	Denison loam	Moderate	Moderate
FaA, FaB, FaC, FcB, FyC2, FsB	Farallone loam	Low	Moderate
Gu	Gullied land (alluvial soil material)	Not Rated	Moderate
MmC2, MmE2, MmE3, MmF2	Miramar coarse sandy loam	Low/Moderate	Moderate
TeC2, TeD2, TeE2	Tierra loam	Moderate	Moderate
WnA	Watsonville loam	Moderate	Moderate

Source: NRCS, 2013

### **Soil Erosion**

Soil erosion is the removal and transportation of soil materials from the ground surface that results in deposition in a remote location. Common mechanisms of soil erosion include natural occurrences, such as wind and storm water runoff, as well as human activities that may include changes to drainage patterns and the removal of vegetation. Factors that influence the rate of soil erosion include the physical properties of the soil, topography and slopes, rainfall and peak rainfall intensity. As noted above, soils on the project site have mild to moderate potential of erosion and have low to moderate expansiveness. Erosion and potential project-related impacts due to erosion are discussed in more detail within **Section 4.8**.

### **Mineral Resources**

Known mineral resource zones in San Mateo County consist of several limestone areas in the Montara Mountains to the east of the project site, along with shell areas, mercury areas, and areas of significant stone scattered throughout the County (San Mateo County, 1986). The closest mine to the Proposed Project is the Pilarcitos Quarry. This mine is located approximately 2.5 miles southeast of the project site and produces primarily granitic rock for aggregates, sands, and other uses. No known mineral resources occur on the project site.

## **4.5.3 REGULATORY SETTING**

### **Federal**

#### ***Federal Earthquake Hazards Reduction Act***

In October 1997, the U.S. Congress passed the Earthquake Hazards Reduction Act to “reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program.” To

accomplish this, the act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990 by the National Earthquake Hazards Reduction Program Act (NEHRPA), which refined the description of agency responsibilities, program goals, and objectives.

NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. The NEHRPA designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Other NEHRPA agencies include the National Institute of Standards and Technology, National Science Foundation, and USGS.

### **State**

#### ***Alquist-Priolo Earthquake Fault Zoning Act***

The Alquist-Priolo Earthquake Fault Zoning Act was passed by the California Legislature to mitigate the hazard of surface faulting to structures. The act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The act addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. Local agencies must regulate most development in fault zones established by the State Geologist. Before a project can be permitted in a designated Alquist-Priolo Fault Study Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

#### ***California Seismic Hazards Mapping Act***

The California Seismic Hazards Mapping Act of 1990 (Public Resources Code Sections 2690–2699.6) addresses seismic hazards other than surface rupture, such as liquefaction and induced landslides. The Seismic Hazards Mapping Act specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

#### ***California Building Standards Code (CBC)***

The State of California provides minimum standard for building design through the CBC (California Code of Regulations, Title 24). Where no other building codes apply, Chapter 29 regulates excavation, foundations, and retaining walls. The CBC also applies to building design and construction in the state and is based on the federal Uniform Building Code (UBC) used

widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The CBC has been modified for California conditions with numerous more detailed and/or more stringent regulations.

The state earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design.

### **Local**

#### ***San Mateo County General Plan***

The San Mateo County General Plan (General Plan) contains the following policies related to geology and soil resources applicable to the Proposed Project (San Mateo County, 1986):

#### ***Soil Resources***

##### 2.17 Regulate Development to Minimize Soil Erosion and Sedimentation

- Regulate development to minimize soil erosion and sedimentation; including, but not limited to, measures which consider the effects of slope, minimize removal of vegetative cover, ensure stabilization of disturbed areas and protect and enhance natural plant communities and nesting and feeding areas of fish and wildlife.

##### 2.23 Regulate Excavation, Grading, Filling, and Land Clearing Activities

- Regulate excavation, grading, filling, and land clearing activities to protect against accelerated soil erosion and sedimentation.

##### 2.25 Regulate Topsoil Removal Operations

- Regulate topsoil removal operations to protect against accelerated soil erosion and sedimentation through measures which ensure slope stabilization and surface drainage control.

#### ***Natural Hazards***

##### 15.12 Locating New Development in Areas Which Contain Natural Hazards

- As precisely as possible, determine the areas of the County where development should be avoided or where additional precautions should be undertaken during review of development proposals due to the presence of natural hazards.
- Give preference to land uses that minimize the number of people exposed to hazards in these areas.

- Require detailed analysis of hazard risk and design of appropriate mitigation when development is proposed in these areas.

### **Geotechnical Hazards**

#### 15.20 Review Criteria for Locating Development in Geotechnical Hazard Areas

- Avoid the siting of structures in areas where they are jeopardized by geotechnical hazards, where their location could potential increase the geotechnical hazard, or where they could increase the geotechnical hazard to neighboring properties.
- Wherever possible, avoid construction in steeply sloping areas (generally above 30 percent slope).
- Avoid unnecessary construction of roads, trails, and other means of public access into or through geotechnical hazard areas.
- In extraordinary circumstances when there are no alternative building sites available, allow development in geotechnical hazardous and/or steeply sloping areas when appropriate structural design measures to ensure safety and reduce hazardous conditions to an acceptable level are incorporated into the project.

## **4.5.4 IMPACT ANALYSIS**

### **Method of Analysis**

This section identifies any impacts associated with geology and soils that could occur from construction, operation, and/or maintenance of the Proposed Project. Impacts to and from geological resources were analyzed based on an examination of the project site, published information regarding geological hazards of the project area, field studies, and comparison of these factors to the significance criteria listed below.

The impact analysis focused on the potential for the Proposed Project to impact the geology and soils within the project site, as well as geologic features in close proximity that might have an adverse impact on the site. The evaluation was made in light of project plans and applicable regulations and guidelines. If it was determined that implementation of the Proposed Project has the potential to meet or exceed the significance criteria listed below, mitigation measures have been recommended to increase the compatibility and safety of the project site and to reduce impacts to less-than-significant levels.

### **Thresholds of Significance**

Criteria for determining the significance of impacts associated with geology and soils have been developed based on Appendix G of the California Environmental Quality Act's (CEQA) *Guidelines*. Impacts associated with geology and soils would be considered significant if the Proposed Project would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction; or
  - Landslides.
- Result in substantial soil erosion or the loss of topsoil;
- Be located in a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- of off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Be located on expansive soil;
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater;
- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or
- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

## Impact Analysis and Mitigation Measures

### **IMPACT 4.5-1. The Proposed Project would result in the construction of structures within a seismically active area.**

Though the Proposed Project includes construction of infrastructure (the permanent diversion structure on San Vicente Creek, a pipeline connecting the point of diversion to an existing pump station on Denniston Creek, a Booster Pump Station, and pipeline improvements along Bridgeport Drive) in an area that is bounded by active faults, the Proposed Project would not expose people to risk of loss, injury or death.

The permanent diversion structure on San Vicente Creek would replace the existing diversion structure which is temporary in nature and more likely to fail in the event of seismic activity. The permanent diversion structure (**Figure 3-4**) is not a dam that would impound water, and would therefore not result in potential downstream flooding impacts in the event of a failure.

Construction of all facilities, including the Booster Pump Station, will be subject to all regulations within the 2010 California Building Codes, which require careful design of structures for the consideration of seismic risk in order to minimize hazard.

All pipelines would be constructed underground and monitored by the CCWD following seismic activity to ensure that any subsequent damage is repaired in a timely manner.

Impacts related to geology and soils as a result of this project are **Less than Significant**.



## 4.6 GREENHOUSE GAS EMISSIONS

### 4.6.1 INTRODUCTION

This section addresses the potential for the Proposed Project to contribute to global warming. Following an overview of the existing climate change settings in **Section 4.6.2** and the relevant regulatory setting in **Section 4.6.3**, project-related impacts and recommended mitigation measures, if any, are presented in **Section 4.6.4**.

### 4.6.2 ENVIRONMENTAL SETTING

#### Climate Change

It is anticipated that the average global temperature could rise 0.6 degrees Celsius ( $^{\circ}$  C) (1.08 degrees Fahrenheit [ $^{\circ}$  F]) to 4.0 $^{\circ}$  C (7.2 $^{\circ}$  F) between the years 2000 and 2100 (IPCC, 2007). The extent to which human activities affect global climate change is a subject of considerable scientific debate. While many in the scientific community contend that global climate variation is a normal cyclical process that is not necessarily related to human activities, the International Panel on Climate Change (IPCC) report identifies anthropogenic greenhouse gases (GHGs) as a contributing factor to changes in the Earth's climate (IPCC, 2007). Consistent with the policies of the State of California and the County of San Mateo (discussed further below in **Section 4.6.3**), the following analysis assumes anthropogenic GHGs are in fact contributing to global climate changes.

Temperatures in California could increase by about 5 $^{\circ}$  F in winter and summer and by about 4 $^{\circ}$  F in spring and fall over the next 100 years. Precipitation is projected to change little in the spring, summer, and fall and to increase by about 10 percent in winter. The frequency of extreme hot days in summer is expected to increase along with the general warming trend (IPCC, 2007).

To help address these overall climate change impacts the State of California has adopted the policy of reducing California's GHG emissions to 1990 levels by the year 2020.

#### Existing Environment

Primary sources of GHG emissions in San Mateo County include vehicles, trucks, natural gas dispensing stations, and electricity generation facilities; however, there are many other sources of GHG emissions in the Proposed Project's vicinity.

### 4.6.3 REGULATORY SETTING

Climate change is a global phenomenon attributable to the sum of all human activities and natural processes. All levels of government are now taking action to address this GHG issue.

#### Federal

The U.S. Supreme Court has held that the GHG carbon dioxide (CO<sub>2</sub>) falls under the Clean Air Act's (CAA's) definition of an "air pollutant", such that the Environmental Protection Agency (EPA) has statutory authority to regulate the emissions of this gas (*Massachusetts v. Environmental Protection Agency*, 549 U.S., 497, 532 [2007]).

The following are the most recent regulatory actions taken by U.S. government agencies related to climate change:

- On July 23, 2009, the EPA published a final "rule which proposes to establish the criteria for including sources or sites in a Registry of Recoverable Waste Energy Sources (Registry)," as required by the Energy Independence and Security Act of 2007. Waste energy can be used to produce clean electricity. The clean electricity produced by waste energy would reduce the need for non-renewable forms of electricity production, thus reducing GHG emissions.
- On September 15, 2009, EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) proposed a new national program that would reduce GHG emissions and improve fuel economy for all new cars and trucks sold in the United States. EPA proposed the first national GHG emissions standards under the Clean Air Act, and NHTSA proposed an increase in the Corporate Average Fuel Economy standards under the Energy Policy and Conservation Act.
- In response to the Fiscal Year 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161), the EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule. Signed by the Administrator on September 22, 2009, the rule requires that suppliers of fossil fuels and industrial GHGs, manufacturers of vehicles and engines outside of the light duty sector, and facilities that emit 25,000 metric tons or more of GHGs per year to submit annual reports to EPA. The rule is intended to collect accurate and timely emissions data to guide future policy decisions on climate change.
- On September 30, 2009, the EPA proposed new thresholds for GHG emissions that define when Clean Air Act permits under the New Source Review and Title V operating permits programs would be required. The threshold was set at 25,000 metric ton of GHG emissions.
- In February, 2010 the Council on Environmental Quality released a memorandum titled *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*. The memorandum provides guidance on how project-

related GHG emission should be analyzed in National Environmental Policy Act (NEPA) documents. The draft guidance provides that a NEPA climate change analysis shall provide quantification and mitigation to reduce GHG emissions. The guidance also provides that 25,000 metric tons of GHG emissions per year may be a helpful guideline to assist lead agencies in making informed decisions on climate change impacts resulting from a project subject to NEPA. The guidance notes that the 25,000 metric tons is not an indicator of a threshold of significant effects, but rather, it is an indicator of a minimum level of GHG emissions that may warrant some description in the appropriate NEPA analysis for agency actions involving emissions of GHGs.

## **State**

California has been a leader among the states in outlining and aggressively implementing a comprehensive climate change strategy that is designed to result in a substantial reduction in total statewide GHG emissions in the future. California's climate change strategy is multifaceted and involves a number of state agencies implementing a variety of state laws and policies. These laws and policies are summarized below:

### ***Assembly Bill 1493 (2002)***

Signed by the Governor in 2002, Assembly Bill (AB) 1493 (2002 Cal. Stats. ch. 200) adopted Health and Safety Code section 43018.5, which requires the California Air Resource Board (CARB) to adopt regulations that achieve the maximum feasible and cost-effective reductions of GHG emissions by motor vehicles in the state. EPA granted California's waiver request, enabling the state to enforce its greenhouse gas emissions standards for new motor vehicles. With the granting of the waiver on June 30, 2009, it is expected that the regulations will reduce GHG emissions from California passenger vehicles by about 22 percent in 2012 and about 30 percent in 2016 (CARB, 2008).

### ***Executive Order S-3-05 (2002)***

Executive Order (EO) S-3-05 was signed by the Governor on June 1, 2005. EO S-3-05 established the following statewide emission reduction targets:

- Reduce GHG emissions to 2000 levels by 2010;
- Reduce GHG emissions to 1990 levels by 2020; and
- Reduce GHG emissions to 80 percent below 1990 levels by 2050.

EO S-3-05 created a "Climate Action Team" or "CAT" headed by the CEPA and including several other state jurisdictional agencies. The CAT is tasked by EO S-3-05 with outlining the effects of climate change on California and recommending an adaptation plan. The CAT is also

tasked with creating a strategy to meet the target emission reductions. In April 2006 the CAT published an initial report that accomplished these two tasks.

### ***Assembly Bill 32 (2006)***

Signed by the Governor on September 27, 2006, AB 32 (2006 Cal. Stats., ch. 488) adopted Health and Safety Code sections 38550-38551, which codify a key requirement of EO S-3-05, specifically a statewide GHG emissions limit at 1990 levels, to be achieved by 2020. AB 32 tasks CARB with monitoring state sources of GHGs and designing emission reduction measures to comply with the law's emission reduction requirements. (Health and Safety Code, §§ 38560-38565).

To accelerate the implementation of emission reduction strategies, AB 32 requires that CARB identify a list of discrete early action measures that can be implemented relatively quickly (Health and Safety Code, §38560.5.) In October 2007, CARB published a list of early action measures that could be implemented and would serve to meet about a quarter of the required 2020 emissions reductions (CARB, 2007a). To assist CARB in identifying early action measures, the CAT published a report in April 2007 that updated its 2006 report and identified strategies for reducing GHG emissions (CAT, 2007). In the October 2007 report, CARB cited the CAT strategies and other existing strategies that may be utilized in achieving the remainder of the emissions reductions. AB 32 required that CARB prepare a comprehensive "scoping plan" that identifies all strategies necessary to fully achieve the required 2020 emissions reductions. (Health and Safety Code, § 38561.) On October 8, 2008 CARB released the Climate Change Scoping Plan, 2008 and on December 12, 2008, CARB approved the Climate Change Scoping Plan (CARB, 2008). CARB provided an update to the December 2008 Scoping Report in November 2009. The update provided additional reduction strategies and an overview of methods to further reduce GHG emissions in California; however, no definitive numerical GHG emissions threshold was provided.

### ***Executive Order S-01-07 (2007)***

EO S-01-07 was signed by the Governor on January 18, 2007. It mandates a statewide goal to reduce the carbon intensity of transportation fuels by at least 10 percent by 2020. This target reduction was identified by CARB as one of the AB 32 early action measures identified in its October 2007 report.

### ***CEQA Guidelines***

On December 30, 2009 the Natural Resources Agency adopted CEQA Guideline Amendments for the quantification and mitigation of greenhouse gas emissions. The adopted amendments provide the following direction for consideration of climate change impacts in a CEQA document:

- The determination of significance of GHG emissions calls for a careful judgment by the lead agency.
- The lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a proposed project.
- A model or methodology may be used to quantify GHG emissions resulting from a CEQA project.
- Significance may rely on qualitative analysis or performance based standards.
- The lead agency may adopt thresholds of significance previously adopted or recommended by other public agencies or recommended by experts.
- The CEQA document shall discuss regional and/or local GHG reduction plans.
- A CEQA document shall analyze GHG emissions if they are cumulatively considerable.
- A description of the effects of climate change on the environment shall be included in CEQA documents.
- A CEQA document shall contain mitigation measures, which feasibly reduce GHG emissions.
- GHG analysis in a CEQA document may be Tiered or Streamlined.

### ***Senate Bill 375***

SB 375 was approved by the Governor on September 30, 2008. (2008 Cal. Stats., ch. 728.) SB 375 provides for the creation of a new regional planning document called a “sustainable communities strategy” (SCS) (Govt. Code, § 65080, subd. (b)(2)). An SCS is a blueprint for regional transportation infrastructure and development that is designed to reduce GHG emission from cars and light trucks to target levels that will be set by CARB for 18 regions throughout California. Each of the various metropolitan planning organizations and the Association of Bay Area Governments (ABAG) must prepare an SCS and include it in that region’s regional transportation plan. The SCS would influence transportation, housing, and land use planning. CARB will determine whether the SCS will achieve the region’s GHG emissions reduction goals. Under SB 375, certain qualifying in-fill residential and mixed-use projects are eligible for streamlined CEQA review (Pub. Res. Code, § 21155.2).

## **4.6.4 IMPACT ANALYSIS**

### **Methodology**

Since the Bay Area Air Quality Management District (BAAQMD) does not provide extensive off-road construction GHG emissions factors and the South Coast Air Quality Management District (SCAQMD) does, project-related off-road construction and operation GHG emissions were estimated using emission factors provided by the SCAQMD (SCAQMD, 2008). Emission

factors from the SCAQMD were for the year 2014. On-road construction and operational GHG emission factors were provided by 2007 EMFAC air quality model (CARB, 2007b).

### Thresholds of Significance

Criteria for determining the significance of impacts to climate change have been developed based on Appendix G of the CEQA *Guidelines* and relevant agency thresholds. Impacts to climate change would be considered significant if the proposed project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Since CARB and BAAQMD do not have a significant threshold for construction GHG emissions, for this analysis construction emissions will be added to operational emissions and compared to the BAAQMD operational significance threshold of 1,100 metric tonnes (MT) per year to get the totals in the “construction year.” In subsequent operating years when no additional emissions will occur due to construction, the operational emissions will stand alone in the quantification.

### Impacts and Mitigation Measures

**IMPACT 4.6-1. Construction and operation of the Proposed Project has the potential to result in the generation of GHG emissions, either directly or indirectly, that may have a significant impact on the environment and conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.**

The Proposed Project would involve the construction of a permanent diversion structure at the location of the San Vicente Creek POD; a total of 8,760 linear feet of pipeline (6,100 linear feet of new pipeline connecting the Upper San Vicente Reservoir and the existing Denniston Pump Station located adjacent to the Denniston Reservoir, and approximately 3,460 feet of new pipeline along Bridgeport Drive); plant upgrades to increase the throughput capacity of Denniston Water Treatment Plant to 1,500 gallons per minute (gpm); and a new Booster Pump Station located adjacent to the existing Denniston Pump Station.

As shown in **Table 4.6-1** construction emissions are estimated at 140.45 MT of carbon dioxide equivalent (CO<sub>2</sub>e). GHG emission estimates were based on one trencher, one cement mixer, one loader/backhoe, worker trips, and a six month construction period. With the implementation of **Mitigation Measures 4.6-1a**, construction GHG emissions would be reduced by 4 tons.

**Table 4.6-1** also shows operational GHG emissions of 4.60 MT per year, which would be generated from typical maintenance activities and the annual dredging of Denniston Reservoir.

Construction and operational emissions would be 143.84 MT in the first year, which is less than the BAAQMD operational threshold of 1,100 MT per year.

**TABLE 4.6-1**  
ESTIMATED PROJECT-RELATED GHG EMISSIONS

<b>Construction</b>					
Equipment	Horsepower	Emission Factors <sup>1</sup>		Hours/miles of Use	Emissions
		CO <sub>2</sub>	CH <sub>4</sub>		MT of CO <sub>2</sub> e
		Pounds per Hour/miles			
Tractor/Loader/Backhoe	175	101.39	0.01	880	40.22
Cement Mixer	25	17.6	0.0023	24	0.19
Trencher	250	222.90	0.02	880	88.44
Worker	-	1.22	0.000034	21,120	11.60
<b>Subtotal</b>					<b>140.45</b>
GHG Emission Reduction from <b>Mitigation Measure 4.2-1a</b>					<4>
<i>Construction Related GHG Emissions</i>					136.45
<b>Operation</b>					
Equipment	Horsepower	Emission Factors <sup>1</sup>		Hours/miles of Use	Emissions
		CO <sub>2</sub>	CH <sub>4</sub>		MT of CO <sub>2</sub> e
		Pounds per Hour/miles			
Dump Truck	250	272.33	0.02	16	1.96
Tractor/Loader/Backhoe	175	101.39	0.01	16	0.73
Worker	-	1.22	0.000034	160	0.09
Maintenance worker trip	-	1.22	0.000034	10	0.01
Pump <sup>2</sup>					4.60
<i>Operation Related GHG Emissions</i>					6.39
<b>Total Project Related GHG Emissions</b>					<b>143.84</b>

MT = metric tonnes.

<sup>1</sup> Emission factors from South Coast Air Quality Management District.

<sup>2</sup> Based on 10 megawatt hours of electricity use and emissions factor of 921.1 pounds of CO<sub>2</sub> per MWh.

Source: EMFAC, 2007b; SCAQMD, 2008; AES, 2014

As discussed in **Section 3.0**, project implementation would reduce the need to import water from the San Francisco Public Utilities Commission (SFPUC). The reduction in water transport would reduce energy used to pump water from the SFPUC. Although not quantified, the reduction in energy would reduce project-related indirect GHG emissions. This reduction could occur from the reduced need to pump water and the reduced reliance on an energy intensive systems (water transfers). This reduction will further lower, by project design, the GHG impacts from energy impacts due to less need to transport water over longer distances.

The Proposed Project would produce a total of 143.83 MT of GHG emissions, which is a less-



than-significant impact, and the mitigation measures provided in **Section 4.2**, Air Quality, will reduce this impact. Construction and operation of the Proposed Project therefore would not result in the generation of GHG emission that, directly or indirectly, has a significant impact on the environment or conflict with California and local policy and regulation adopted for the purpose of reducing the emissions of GHG. Impacts to climate change from project-related GHG emission would be **Less than Significant with Mitigation**.

**Mitigation Measure 4.6-1:** Implement **Mitigation Measure 4.2-1**, which would reduce project-related GHG emissions by three percent.

## 4.7 HAZARDS AND HAZARDOUS MATERIALS

### 4.7.1 INTRODUCTION

This section addresses the potential effects on human health and the environment due to hazards and hazardous materials in conjunction with the Proposed Project. **Section 4.7.2** describes the environmental setting, including hazards and hazardous materials in and around the project site. **Section 4.7.3** describes the relevant regulatory setting. Project-related impacts and recommended mitigation measures are presented in **Section 4.7.4**.

### 4.7.2 ENVIRONMENTAL SETTING

#### Definition of Hazardous Material

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, State, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22 of the California Code of Regulations (CCR) as:

*A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed" (CCR, Title 22, Section 66260.10).*

#### Project Area Database Report

Database searches were conducted for records of known sites of hazardous materials generation, storage, and/or contamination within the vicinity of the project site. Databases were searched for sites and listings up to 1.0 mile from a point roughly equivalent to the center of project site. The environmental database review was accomplished by using the services of the computerized search firm *Environmental Data Resources, Inc.* (EDR). EDR uses a geographical information system to plot locations of past and/or current hazardous materials involvement.

No known sites of past or current hazardous materials contamination occur within the project site; however, the EDR report identified one site located approximately half a mile southwest of the project site (EDR, 2012). A description of this site is provided below. The complete list of reviewed databases is provided in **Appendix D**.

- The Half Moon Bay Flight Strip is located at 46 Cabrillo Hwy, approximately 0.4 mile west of the project boundary. The Half Moon Bay Flight Strip property is listed on the formally used defense site (FUDS) list. Prior to land transfer to San Mateo County, the Department of Defense (DOD) constructed military refueling facilities at the Half Moon Bay Flight Strip including two underground storage tanks (UST) used for jet fuel, two abandoned USTs, seven underground fuel pump pits, and two exposed concrete sumps. The two USTs are currently in operation. Due to the distance and the groundwater gradient in the vicinity and the lack of documented leaks or spills, this site does not likely to pose a risk to the environmental quality of the project site.

The California Hazardous Waste and Substances Sites list (CORTESE) was additionally examined for records of listed sites in the vicinity of the project site. No records were found for the project site or surrounding properties.

### **Project Site Setting**

A site reconnaissance of the project site was conducted by AES staff on June 14, 2011 to determine if any Recognized Environmental Conditions (RECs) exist. RECs refer to the presence or likely presence of conditions on a property that indicate an existing release, a past release, or a material threat of release of any hazardous substances or petroleum products on the property or into the ground, groundwater, or surface water of the property.

The project site is mostly undeveloped and dominated by coastal scrub and ruderal grassland vegetation, as well as several eucalyptus groves. Herbicides, pesticides, and fungicides were possibly used at one point in ruderal/developed areas of the project site, although the presence of these substances has not been identified on the site. Numerous buildings associated with the equestrian facility, including stables and other animal pens, are in the general vicinity of the San Vicente Creek point of diversion (POD). These buildings do not contain underground septic systems nor was evidence of herbicides and/or pesticides noted in this area during the June 2011 site visit. One abandoned home site is located in the eastern dredge disposal site. Due to the lack of service connections, this home site is assumed to contain an underground septic system and associated leach field. No excavation is anticipated to occur in the vicinity of this home site.

During the June 2011 site visit, general farm materials (pesticides and herbicides) were observed on the adjacent property southwest of Denniston Creek portion of the project alignment.

### ***Sensitive Receptors***

Sensitive receptors are primarily those that have the potential to be harmed through exposure to hazardous materials. The nearest public school, Farallone View Elementary School, is located in the community of Montara Beach approximately 1.1 miles northwest of the project site. Surrounding the project site are several housing developments to the north and south, as well as agricultural fields to the west.

### ***Air Strips and Airports***

The Half Moon Bay Airport is located approximately 0.4 miles west of the project site. The project site is located within the Traffic Overflight Zone (TOZ) for the airport (San Mateo County, 1996). The TOZ is a large area (roughly 10,000 feet in diameter, centered on the airport) under the airport traffic pattern and is less restrictive in terms of compatibility issues than those zones closer to the airport.

### ***Wildland Fires***

The project site is located on land designated partially as “State Responsibility Area (SRA) Very High Fire Hazard Safety Zone (FHSZ)” and partially as “Local Responsibility Area (LRA) unincorporated” according to the San Mateo County Draft Fire Hazard Zones Map produced by the California Department of Forestry and Fire Protection (CalFire) (CalFire, 2007).

## **4.7.3 REGULATORY SETTING**

### **Federal**

#### ***United States Environmental Protection Agency***

The United States Environmental Protection Agency (EPA) administers numerous statutes pertaining to human health and the environment. The EPA regulates toxic air contaminants through its implementation of the Clean Air Act (CAA). Although the CAA covers a range of air pollutants, Section 112(r) specifically covers “extremely hazardous materials” which include acutely toxic, extremely flammable, and highly explosive substances. Section 112(r) (referred to as the EPA’s Risk Management Program) requires facilities involved in the use or storage of extremely hazardous materials to implement a Risk Management Plan (RMP). A RMP requires a detailed analysis of potential accident factors present at a facility and requires the implementation of mitigation measures designed to reduce the identified accident potential.

The EPA also regulates the land disposal of hazardous materials through the Resource Conservation and Recovery Act (RCRA). Under RCRA, the EPA regulates the activities of waste generators, transporters, and handlers (any individual who treats, stores, and/or disposes of a designated hazardous waste). RCRA further requires the tracking of hazardous waste from its generation to its final disposal through a process often referred to as the “cradle-to-grave”

regulation. The “cradle-to-grave” regulation requires detailed documentation and record keeping for hazardous materials generators, transporters, and/or handlers in order to ensure proper accountability for violations.

### ***Federal Occupational Safety and Health Administration***

The Occupational Safety and Health Act (OSHA) (29 CFR) regulates the preparation and enforcement of occupational health and safety regulations with the goal of providing employees a safe working environment. OSHA regulations apply to the work place and cover activities ranging from confined space entry to toxic chemical exposure. OSHA regulates workplace exposure to hazardous chemicals and activities through regulations governing work place procedures and equipment.

### ***U.S. Department of Transportation***

The United States Department of Transportation (USDOT) regulates the interstate transport of hazardous materials and wastes through implementation of the Hazardous Materials Transportation Act. This act specifies driver-training requirements, load labeling procedures, and container design and safety specifications. Transporters of hazardous wastes must also meet the requirements of additional statutes such as RCRA, discussed previously.

## **State**

### ***Department of Toxic Substances Control***

The California Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under RCRA and the State Hazardous Waste Control Law. Both laws impose “cradle-to-grave” regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

### ***California Occupational Safety and Health Administration***

California Division of Occupational Safety and Health (Cal/OSHA) assumes primary responsibility for developing and enforcing state workplace safety regulations. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in 29 C.F.R. Cal/OSHA standards are generally more stringent than federal regulations.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace, as detailed in Title 8 of the California Code of Regulations, include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations that contain training and information

requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous waste sites. The hazard communication program requires that Material Safety Data Sheets (MSDSs) be available to employees and that employee information and training programs be documented.

#### ***California Hazardous Materials Release Response Plans and Inventory Law of 1985***

The California Hazardous Materials Release Response Plans and Inventory Law of 1985, often referred to as the Business Plan Act, requires facility operators to prepare Hazardous Materials Business Plans (HMBP). HMBPs are required to inventory hazardous materials stored and used on site, disclose the location of storage and use on site, maintain an emergency response plan, and contain provisions specifying employee training in safety and emergency response procedures. Local regulatory authorities such as San Mateo Environmental Health Division collect hazardous Materials Business Plans.

#### ***Regional Water Quality Control Board***

The State Water Resources Control Board (SWRCB), and the Regional Water Quality Control Boards (RWQCB), regulate hazardous substances, materials and wastes through a variety of state statutes including, for example, the Porter Cologne Water Quality Control Act, Cal. Water Code §13000 et seq., and the underground storage tank cleanup laws (Cal. Health and Safety Code §§25280-25299.8). The RWQCB regulates all pollutant or nuisance discharges that may affect either surface water or groundwater. Any person proposing to discharge waste within any region must file a report of waste discharge with the appropriate regional board. The project site is located within the jurisdiction of the San Francisco Bay RWQCB (SFRWQCB).

#### ***California Accidental Release Program***

The California Accidental Release Program (CalARP), governed by regulations set forth in the California Health and Safety Code (Section 25531 through 25543.3), requires that a facility that stores, generates, treats, or manufactures a regulated hazardous material to develop and submit RMPs. The RMPs must document all regulated hazardous materials, method of storage, location of storage areas, amounts present at a facility, and safety features for containing a potential release. The purpose of the CalARP is to prevent the accidental release of hazardous materials from a stationary source. The San Mateo Environmental Health Services Department administers the CalARP Programs within San Mateo County.

### ***Emergency Response to Hazardous Materials Incidents***

California has developed an Emergency Response Plan to coordinate emergency services provided by Federal, State, and local government and private agencies. Response to hazardous materials incidents is one part of this plan. The plan is administered by the state Emergency Management Agency, which coordinates the responses of other agencies including California Environmental Protection Agency (Cal/EPA), the California Highway Patrol, California Department of Fish and Wildlife (CDFW), the SFRWQCB, and the San Mateo County Office of Emergency Services.

## **Local**

### ***San Mateo County***

The San Mateo County General Plan (General Plan) contains the following policies related to hazards and hazardous materials applicable to the Proposed Project (San Mateo County, 1986):

### ***Natural Hazards***

#### 15.12 Locating New Development in Areas which Contain Natural Hazards

- As precisely as possible, determine the areas of the County where development should be avoided or where additional precautions should be undertaken during review of development proposals due to the presence of natural hazards.
- Give preference to land uses that minimize the number of people exposed to hazards in these areas.
- Determine appropriate densities and development standards for new development proposed in these areas.
- Require detailed analysis of hazard risk and design of appropriate mitigation when development is proposed in these areas.

#### 15.29 Review Criteria for Locating Development Outside of Fire Hazard Areas

- Insure that fire safety is adequately addressed in the review of new development proposed in unincorporated areas located outside of fire hazard areas through measures including but not limited to referral of proposals for development to appropriate fire protection agencies for conditions of approval.

### ***Man-Made Hazards***

#### 16.14 Regulate Land Uses to Assure Airport Safety

- Regulate land uses surrounding airports to assure airport safety. Measures may include restrictions on permitted land uses and development review height criteria.



#### 16.53 Regulate Location of Hazardous Material Uses

- Regulate the location of uses involving the manufacture, storage, transportation, use, treatment, and disposal of hazardous materials to ensure community compatibility. Provide adequate siting, design, and operation standards.

#### ***Half Moon Bay Airport Land Use Plan***

The following is a list of general safety policies of the San Mateo County Comprehensive Airport Land Use Plan (ALUP) for the Half Moon Bay Airport that apply to the Proposed Project:

- The following safety zones are established at Half Moon Bay Airport: Approach Protection Zone (APZ), Runway Protection Zone (RPZ), and Traffic Overflight Zones (TOZ).
- Non-structural uses may be permitted in an APZ if they do not cause a concentration of more than 10 people per net acre on a 24-hour basis.

### **4.7.4 IMPACT ANALYSIS**

#### **Thresholds of Significance**

Criteria for determining the significance of impacts to hazardous materials have been developed based on Appendix G of the CEQA *Guidelines* and any relevant agency thresholds. For the purposes of this EIR, the Proposed Project would generally be considered to have a significant adverse impact to the public or the environment if it would:

- Create a significant hazard through the routine transport, use or disposal of hazardous materials;
- Create a significant hazard through reasonably foreseeable upset and accident conditions involving the release hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter miles of an existing or proposed school;
- Be located on a site that is listed as a hazardous materials site compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
- Be located within an airport land use plan or within an area were such a plan has not been adopted, that would result in a safety hazard to people residing or working in the project area;
- Result in a safety hazard for people residing or working in the project area for a project located within the vicinity of a private airstrip;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or

- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

### Impacts and Mitigation Measures

#### **IMPACT 4.7-1. Equipment used during grading and construction activities may create sparks, which could ignite dry grass on the project site.**

During construction, the use of power tools and acetylene torches may increase the risk of fire hazards on the project site. This risk, similar to that found at other construction sites, is potentially significant. **Mitigation Measures 4.7-1a** and **4.7-1b** will reduce potentially significant impacts associated with fire hazards created during construction to **Less than Significant with Mitigation**.

**Mitigation Measure 4.7-1a:** During construction, staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a firebreak.

**Mitigation Measure 4.7-1b:** Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.

#### **IMPACT 4.7.2 The Proposed Project is located within the planning area for the San Mateo County Comprehensive Airport Land Use Compatibility Plan, and therefore could result in potential safety hazards for people residing or working in the project area.**

Operation of the Proposed Project would not exceed the maximum usage intensities nor would it result in the construction of any object over 100 feet tall. The Proposed Project would not result in conflicts with adopted policies in the Half Moon Bay ALUP. Therefore, the Proposed Project would not result in a safety hazard to people residing or working in the project area. This impact is **Less than Significant**.

**IMPACT 4.7-3 Construction of the Proposed Project would include the routine storage and handling of hazardous materials, which could result in a public health or safety hazard from the accidental release of hazardous materials into the environment.**

During grading and construction activities it is anticipated that limited quantities of miscellaneous hazardous substances, such as gasoline, diesel fuel, hydraulic fluid, solvents, oils, etc. would be brought to the project staging areas. Temporary storage units (bulk above-ground storage tanks, 55-gallon drums, sheds/trailers, etc.) would likely be used by various contractors for fueling and maintenance purposes. As with any liquid and solid, the handling and transfer between one container to another has the potential for an accidental release. Construction contractors will be required to comply with applicable federal and state environmental and workplace safety laws. Adherence to these regulatory requirements would ensure that this impact is less than significant. **Mitigation Measures 4.7-2** is provided to further decrease the potential for impacts from accidental release of hazardous materials during construction of the Proposed Project. This impact is **Less than Significant with Mitigation**.

**Mitigation Measure 4.7-2:** Personnel shall follow written Standard Operating Procedures (SOPs) for filling and servicing construction equipment and vehicles. The SOPs, which are designed to reduce the potential for incidents involving the hazardous materials, shall include the following:

- Refueling shall be conducted only with approved pumps, hoses, and nozzles;
- Catch pans shall be placed under equipment to catch potential spills during servicing;
- All disconnected hoses shall be placed in containers to collect residual fuel from the hose;
- Vehicle engines shall be shut down during refueling;
- No smoking, open flames, or welding shall be allowed in refueling or service areas;
- Refueling shall be performed away from bodies of water to prevent contamination of water in the event of a leak or spill;
- Service trucks shall be provided with fire extinguishers and spill containment equipment, such as absorbents;
- Should a spill contaminate soil, the soil shall be put into containers and disposed of in accordance with local, State, and Federal regulations;
- All containers used to store hazardous materials shall be inspected at least once per week for signs of leaking or failure. All maintenance and refueling areas shall be inspected monthly. Results of inspections shall be recorded in a logbook that would be maintained on site; and

- The amount of hazardous materials used in project construction and operation shall be consistently kept at the lowest volumes needed.

**IMPACT 4.7-4 Sediment removal activities associated with the Proposed Project could create a significant hazard through upset and accident conditions involving the release hazardous materials into the environment.**

The sediment removal program would require the dredging, excavation, and disposal of soil / sediment from the Denniston Reservoir. Although an ongoing sediment removal program is currently authorized by the CDFW through a Streambed Alteration Agreement (SAA), the potential exists for the release of contaminants potentially located in the sediment within the Denniston Reservoir. Improper disposal of this material would result in a potentially significant impact. This impact is discussed in **Section 4.3**, Biological Resources, and is reduced to a less-than-significant level through implementation of **Mitigation Measures 4.3-4a** through **4.3-4d**. This impact is **Less than Significant Impact with Mitigation**.

## 4.8 HYDROLOGY AND WATER QUALITY

### 4.8.1 INTRODUCTION

This section provides information regarding hydrology and water quality relevant to the Proposed Project. Following an overview of the existing setting in **Section 4.8.2** and the relevant federal, State, and local regulations in **Section 4.8.3**, project-related impacts and recommended mitigation measures are presented in **Section 4.8.4**.

### 4.8.2 ENVIRONMENTAL SETTING

#### Regional Setting

##### *Climate*

The region has a coastal Mediterranean climate with distinct wet and dry seasons. Nearly 95 percent of the precipitation is recorded during the months of October through April, with over 80 percent of the precipitation falling from November through March. Winter storms are typically temperate Pacific fronts. The average annual precipitation in Half Moon Bay (recorded since 1939) is 26.16 inches (WRCC, 2013). The region has steady minimum temperatures throughout the year. The summer season is generally characterized by cool and foggy weather, and frosts are rare in the winter. Temperatures in the region vary with a minimum average temperature of 47° F and a maximum average temperature of 62.2° F. Fog acts as an integral part of the local climate by moderating heat and drought during the summer seasons and contributing to the water supply in the area (CCC, 2008).

##### *Regional Geology and Hydrogeology*

As noted in **Section 4.5**, the Proposed Project occurs near the western edge of the California Coast Ranges in a region topographically dominated by Montara Mountain. Marine terraces and coastal valleys extend between the ocean and the crest of Montara Mountain two miles to the east and over 1,800 feet higher in elevation. The marine terraces are bisected by streams of small watersheds originating on steep slopes of the mountain. The steep canyons and ravines of the upper watersheds transition abruptly into broad, flat-bottomed, and steeply-walled lower valleys. The valleys are filled with unconsolidated alluvial and coastal terrace deposits to depths of up to 100 feet above the canyon bottoms. These deposits are largely coarse- and medium-grained sand eroded from granitic rocks of Montara Mountain (Balance Hydrologics, 2002). Sediment from San Vicente and Denniston Creeks has also accumulated in a down-faulted basin (the Pillar Point Graben), forming the coastal plain on which the Half Moon Bay Airport was established (CCC, 2008).

Groundwater in the region generally moves through a complex coastal aquifer system composed of four distinct units, as described in the *Midcoast Groundwater Study* prepared for

the County of San Mateo (Balance Hydrologics, 2002). The four aquifer types consist of: (1) heavily-fractured Cretaceous granitic rocks of the Montara Mountain batholith that forms the basement bedrock; (2) overlying weakly to moderately consolidated sandstone and siltstone of the Pliocene-aged Purisima Formation; (3) Quaternary marine terrace deposits of various ages, and (4) Holocene coarse-grained alluvium and colluvium.

Site-specific surface water and groundwater hydrology and water quality features are discussed in more detail below.

**Project Area Setting**

**Surface Water Quantity**

There are two creeks and several man-made water storage ponds in the immediate vicinity of the project site. The two creeks are within the Denniston Creek planning watershed (pws) as shown in **Figure 4.8-1**.

**Table 4.8-1** details the various existing riparian rights and water right permits and licenses for San Vicente and Denniston Creeks. Cabrillo Farms diverts and uses water from San Vicente and Denniston Creeks under licenses and statements of diversion to irrigate approximately 165 acres of farmland that it leases from the National Park Service (NPS). In an agreement between NPS and Cabrillo Farms dated December 9, 2011, Cabrillo Farms agreed to limit its total diversions from both creeks to 248 acre-feet per year (AFY).

**TABLE 4.8-1**  
WATER RIGHTS FOR SAN VICENTE AND DENNISTON CREEKS<sup>1</sup>

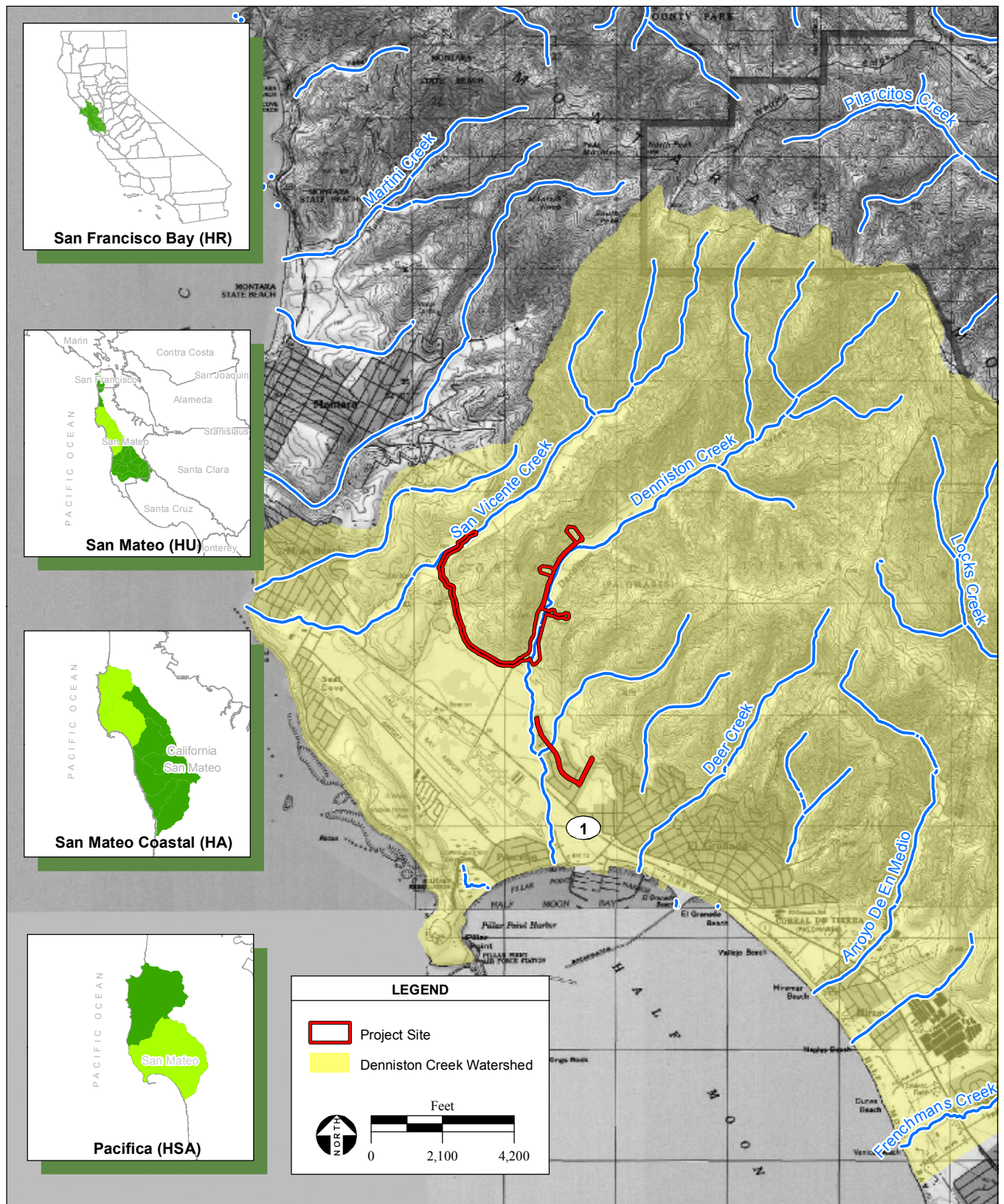
	San Vicente Creek					Denniston Creek		
	License 11983	License 12384	Statement of Diversion #S009377	Statement of Diversion #S009378	Permit 15882	Statement of Diversion #S009375	Statement of Diversion #S009376	Permit 15882
Water User	Cabrillo Farms	Cabrillo Farms	Cabrillo Farms	West Coast Farms	CCWD	Cabrillo Farms	Cabrillo Farms	CCWD
Diversion Season	Nov. through June	Nov. through June	March through October	n/a	All Year <sup>2</sup>	May through October	March through October	All Year
Volume (AFY)	49 AFY (41 AF usable)	49 AFY	79 AFY	Maximum 248 AFY <sup>3</sup>	n/a	Maximum 248 AFY <sup>3</sup>	n/a	n/a
Allowable Rate of Diversion (cfs)	1.0 cfs	1.0 cfs	1.0 cfs	n/a	2.0 cfs	1.0 cfs	0.75 cfs	2.0

<sup>1</sup> Cabrillo Farms also holds Permits 18122 and 18124 for diversions from Denniston Creek to offstream storage and Permit 17627 for diversions from San Vicente Creek to offstream storage. These permits are not being used and never have been used.

<sup>2</sup> The District may only divert from San Vicente between June and October if there is surface flow at the boundary of Torello Ranch downstream.

<sup>3</sup> Paragraph 26(a) of the agreement with NPS limits the farmers' total diversions to 248 AFY from San Vicente and Denniston Creeks, combined.

Source: State Water Resources Control Board and Frahm, 2011 (Appendix F)



SOURCE: California Interagency Watershed Map of 1999;  
 "Montara Mountain, CA" USGS 7.5 Minute Topographic Quadrangle,  
 T4S & 5S R5W & 6W, Unsectioned Area of Corral de Tierra,  
 Mt. Diablo Baseline & Meridian; AES, 2013

CCWD Denniston/San Vicente Water Supply DEIR / 211525 ■

**Figure 4.8-1**  
 Watershed Map of the Project Area



### San Vicente Creek

San Vicente Creek flows from a 1.79 square mile watershed on the western slope of Montara Mountain and flows into the Pacific Ocean at the Fitzgerald Marine Reserve. The entire watershed upstream from Highway 1 is underlain by deeply weathered quartz diorite derived from Montara Mountain, which is capable of holding considerable amounts of water, and which slowly and steadily yields a persistent baseflow (Balance Hydrologics, 2012; **Appendix E**). This persistent baseflow ensures that flows in San Vicente Creek do not decline as much as other creeks in other coastal watersheds during mid-winter dry spells during average precipitation years.

Surface water from San Vicente Creek is currently diverted under Application 25353 (License 11983) and Application 25355 (License 12384) by local farmers (Cabrillo Farms) into two offstream reservoirs for irrigation purposes: the Upper and Lower San Vicente reservoirs. The diversion amounts listed in **Table 4.8-2** are estimates made by Tim Frahm from discussions with the local farmers, research of available public records, and assumptions made based on crop acreage and crop type (2011; **Appendix F**). Another water user (West Coast Farms) has a riparian right (Statement 9378) on San Vicente Creek for diversions upstream of the diversion for the Upper and Lower San Vicente Reservoirs, but no record of any actual diversion or use was available. Balance Hydrologics gage data taken on the stream over three consecutive years measured this annual diversion between 5 and 6 AFY, so 6 AFY was assumed for all years. The existing diverters on San Vicente Creek and amounts diverted are shown in **Table 4.8-2**.

**TABLE 4.8-2**  
CEQA BASELINE CONDITION ON SAN VICENTE CREEK BY DIVERTER

Water Right	Water User	Amount Diverted <sup>1</sup>
License 11983	Cabrillo Farms	49 AFY
License 12384	Cabrillo Farms	49 AFY
#S009377	Cabrillo Farms	79 AFY
#S009378	West Coast Farms	6 AFY <sup>2</sup>
<b>Total</b>		<b>183 AFY</b>
<b>Unimpaired Flow<sup>2</sup></b>	<b>Amount Diverted</b>	<b>Baseline Flow Below POD</b>
764 AFY	183 AFY	581 AFY

<sup>1</sup> Source: Frahm, 2011 (**Appendix F**)

<sup>2</sup> Source: Balance Hydrologics, 2013 (**Appendix G**). San Vicente Creek in a normal water year (A water year is considered normal if it falls between 85 and 120 percent of the average annual precipitation for that area).

The CEQA baseline condition of San Vicente Creek is broken out by month and water year type in **Table 4.8-3**. Complete gage data by water year type is not available for San Vicente Creek. Therefore, Balance Hydrologics (2013; **Appendix G**) calculated the unimpaired flow based on modeled correlation with Pescadero Creek because the Pescadero Creek model most closely predicted the actual flow data available for San Vicente and Denniston Creeks. In addition, Pescadero Creek has a large data set (61 years) of gage data, and is geographically close to

the Denniston Creek pws, reducing error related to storm pattern variation. The CEQA baseline condition includes all authorized diverters on San Vicente Creek, which are presented in **Table 4.8-2** and summarized in the “Other Diversions” column below. The CEQA baseline is calculated by subtracting existing diversions from the unimpaired flow.

**TABLE 4.8-3**  
CEQA BASELINE CONDITION ON SAN VICENTE CREEK BY MONTH

<b>Dry Year</b>				
	<b>Unimpaired Flow (cfs)<sup>1</sup></b>	<b>Other Diversions (cfs)<sup>2</sup></b>	<b>Existing CCWD Diversion (cfs)</b>	<b>CEQA Baseline Flow (cfs)</b>
October	0.57	0.15	0.00	0.42
November	0.59	0.30	0.00	0.29
December	0.84	0.45	0.00	0.39
January	1.31	0.45	0.00	0.86
February	1.24	0.15	0.00	1.09
March	1.31	0.15	0.00	1.16
April	0.81	0.30	0.00	0.50
May	0.61	0.30	0.00	0.30
June	0.49	0.15	0.00	0.34
July	0.44	0.15	0.00	0.29
August	0.40	0.23	0.00	0.18
September	0.37	0.23	0.00	0.14
<b>Normal Year</b>				
	<b>Unimpaired Flow (cfs)<sup>1</sup></b>	<b>Other Diversions (cfs)<sup>2</sup></b>	<b>Existing CCWD Diversion (cfs)</b>	<b>CEQA Baseline Flow (cfs)</b>
October	0.61	0.15	0.00	0.45
November	0.74	0.30	0.00	0.44
December	1.60	0.45	0.00	1.14
January	1.80	0.45	0.00	1.34
February	2.07	0.15	0.00	1.92
March	1.80	0.15	0.00	1.65
April	1.28	0.30	0.00	0.97
May	0.86	0.30	0.00	0.55
June	0.61	0.15	0.00	0.45
July	0.54	0.15	0.00	0.39
August	0.50	0.23	0.00	0.28
September	0.45	0.23	0.00	0.23
<b>Wet Year</b>				
	<b>Unimpaired Flow (cfs)<sup>1</sup></b>	<b>Other Diversions (cfs)<sup>2</sup></b>	<b>Existing CCWD Diversion (cfs)</b>	<b>CEQA Baseline Flow (cfs)</b>
October	0.66	0.15	0.00	0.50
November	0.89	0.30	0.00	0.59

December	1.80	0.45	0.00	1.34
January	3.46	0.45	0.00	3.01
February	3.26	0.15	0.00	3.11
March	3.39	0.15	0.00	3.24
April	2.25	0.30	0.00	1.95
May	1.31	0.30	0.00	1.01
June	1.01	0.15	0.00	0.86
July	0.96	0.15	0.00	0.81
August	0.87	0.23	0.00	0.65
September	0.81	0.23	0.00	0.58

<sup>1</sup> Source: Balance Hydrologics, 2013 (**Appendix G**)

<sup>2</sup> Source: Adapted from **Table 4.8-2**

The existing diversion structure consists of a sandbag and plywood check dam, which shunts water into an excavated spur channel where it enters a PVC pipeline. Water is conveyed from this point of diversion (POD) on San Vicente Creek through a gravity flume and pipe system to Upper San Vicente Reservoir and is then transported via gravity to Lower San Vicente Reservoir. The existing pipeline from the POD on San Vicente Creek to Upper San Vicente Reservoir will be replaced and upgraded as part of the Proposed Project (SWRCB, 1984a; 1984b). While functional, this POD is poorly constructed and in disrepair, and over time has facilitated significant downcutting of the channel below the seasonal check dam. A properly engineered structure will be necessary to ensure that continued use of this POD does not further degrade water quality or the integrity of the channel. The Cabrillo Farms water rights allow for the licensed diversion of up to 98 acre-feet (AF) to offstream storage in the two reservoirs (49 AF per reservoir) from San Vicente Creek and additional water based on the riparian right documented by Statements of Diversion (Kleinfelder, 2008). Cabrillo Farms shares this POD with CCWD.

Of the 98 AF of water diverted to storage by Cabrillo Farms, 90 AF is available for use each year (License 11983 requires a “reserve” of 8 AF of water to remain in the pond) (SWRCB, 1984a). Each license allows up to 1.0 cubic foot per second (cfs) diversion rate (for a combined allowed diversion rate of 2.0 cfs from San Vicente Creek for winter diversion) (SWRCB, 1984a; 1984b). The farmer also reports his riparian diversion from this same POD (Statement of Diversion and Use (Statement) 9377) on San Vicente to supplement their water needs (SWRCB, 2002b). Riparian water is taken from the stream at the same POD and through the same conveyance system described above to the reservoirs. Water stored in Upper and Lower San Vicente reservoirs is pumped out and used to irrigate the agricultural fields to the south and west. Water diverted under riparian rights essentially tops off the storage capacity of the Upper and Lower Reservoirs and is generally taken during the irrigation season, when sufficient water is available in stream, during the months of March through early October. The diversion rate

under this riparian right is up to 1.0 cfs, and the actual rate of diversion according to the farmer is substantially less (approximately 0.25 cfs, for a total usage of 79 AFY). Application 25356 (Permit 17627) is also permitted for diversions from the stream, but appears to not be in operation and never to have been used in the past (SWRCB, 2012). For this reason, this application is part of the CEQA baseline condition for this stream as shown in **Tables 4.8-1 and 4.8-2**. On average, approximately 186 AF of water is currently diverted from San Vicente Creek under the Cabrillo Farms and West Coast Farms licenses and riparian rights. All but the 6 AF used by West Coast Farms is diverted from San Vicente Creek at the POD that will be upgraded as part of the Proposed Project.

The CCWD has diverted and used San Vicente Creek water from the same POD intermittently in the past, primarily during the early 1980's when a temporary, above ground pipeline was installed from the point where the existing pipeline from the POD empties into Upper San Vicente Reservoir; this temporary pipeline generally followed the proposed route of the project pipeline to the Denniston pumping station adjacent to Denniston Reservoir. The proposed pipeline will closely follow the existing farm roadways rather than the exact previous pipeline route. The proposed pipeline will replace the current pipeline from the POD to Upper San Vicente Reservoir where it will join the proposed new pipeline and allow the CCWD diversion to convey water to the existing Denniston Pump Station and thence to the Denniston Water Treatment Plant (WTP). CCWD has existing easements for the pipeline route.

### ***Denniston Creek***

Denniston Creek flows parallel to San Vicente Creek from a 3.82 square mile watershed on the western slope of Montara Mountain, and flows into the Pacific Ocean at Pillar Point Harbor. The entire watershed upstream from Highway 1 is underlain by deeply weathered quartz diorite from Montara Mountain, which is capable of holding considerable amounts of water, and which slowly and steadily yields a persistent baseflow (Balance Hydrologics, 2012; **Appendix E**). This persistent baseflow ensures that flows in Denniston Creek do not decline as much as they do in creeks in other coastal watersheds during mid-winter dry spells in average precipitation years.

Denniston Reservoir, located approximately one mile upstream from Highway 1, is an onstream, regulating reservoir. Built by local farmers in the early 1930's, the reservoir facilitates diversions for both the CCWD and the adjacent farmer with a maximum of 30 days storage allowable for each diverter. Denniston Reservoir is located at an elevation of 115 feet (TRC Essex, 2006). The CCWD's Denniston WTP is located approximately 0.3 miles north of the dam. The existing pump station that moves water from the Denniston Reservoir uphill to the Denniston WTP is located at the westerly side of the reservoir and is currently in place. The proposed San Vicente pipeline will be tied in to the current infrastructure at this existing pump station.

Denniston Reservoir is the POD and water source for the CCWD and the adjacent farmer. Cabrillo Farms diverts water at this shared POD under a riparian right (Statement 9375), as shown in **Table 4.8-2** (SWRCB, 1977a, 1977b, 1977d). The farmer also has rights to pump water directly from Denniston Creek at an existing farm field above the Denniston Reservoir under a riparian right described in Statement of Diversion 9376. Although there are existing permits under Applications 25467 and 25469 according to the State Water Resources Control Board (SWRCB), the reservoirs described in these applications were never constructed (SWRCB, 1977c, 2002a; Frahm, 2011; **Appendix F**).

One riparian right (Statement 9376) is for direct diversions from Denniston Creek, and is used to serve a 21-acre field known as the Canyon Field, which lies approximately 0.7 mile upstream of the Denniston Reservoir site. Water may be diverted from the creek at a diversion rate 0.75 cfs during the months of May through October (the irrigation season), although the farmer reports the actual diversion rate is substantially less. The other riparian right (Statement 9375) is used for direct diversions from Denniston Creek at the Denniston Reservoir POD to irrigate agricultural fields in the vicinity. The diversion rate is up to 1.0 cfs over a season of May through October, but the actual rate of diversion, according to the farmer, is less. The existing diverters on Denniston Creek and amounts diverted are shown in **Table 4.8-4**. The riparian right diversions are estimates made by Tim Frahm from discussions with the local farmers, research of available public records, and assumptions made based on crop acreage and crop type (2011; **Appendix F**). The CCWD diversion rates are based on reported diversions and permittee progress reports provided by the District. The District's diversions are capped at all times by the 2.0 cfs limit in Permit 15882.

**TABLE 4.8-4**  
CEQA BASELINE CONDITION ON DENNISTON CREEK BY DIVERTER

Water Right	Water User	Amount Diverted <sup>1</sup>
#S009375	Cabrillo Farms	79 AFY
#S009376	Cabrillo Farms	80 AFY
Permit 15882	CCWD	811 AFY <sup>2</sup>
<b>Total</b>		<b>971 AFY</b>
Unimpaired Flow <sup>3</sup>	Amount Diverted	Baseline Flow Below POD
1,693 AFY	971 AFY	722 AFY

<sup>1</sup> Source: Frahm, 2011 (**Appendix F**)

<sup>2</sup> Source: CCWD, 2013

<sup>3</sup> Source: Balance Hydrologics, 2013 (**Appendix G**), Denniston Creek in a normal water year.

The CEQA baseline condition on Denniston Creek is broken out by month and water year type in **Table 4.8-5**. Complete gage data by water year type is not available for Denniston Creek. Therefore, Balance Hydrologics (2013; **Appendix G**) calculated the unimpaired flow based on correlation between Pescadero Creek because Pescadero Creek has similar watershed geology and lack of impairment in the watershed that mirrors the Denniston Creek pws. The CEQA

baseline includes all authorized diverters on Denniston Creek, which are presented in **Table 4.8-4** and summarized in the “Other Diversions” column and the “Existing CCWD Diversion” column. The District’s diversions are what the District has reported to the SWRCB, averaged over the period of 1994 through 2003, which reflects the most recent period under an approved petition for extension of time. For the purpose of this analysis, CCWD’s existing diversions are limited to no greater than the maximum demonstrated annual use of 811 AFY. The CEQA baseline is calculated by subtracting the other diversions and CCWD’s diversions from the unimpaired flow.

**TABLE 4.8-5**  
CEQA BASELINE CONDITION ON DENNISTON CREEK BY MONTH

<b>Dry Year</b>				
	<b>Unimpaired Flow (cfs)<sup>1</sup></b>	<b>Other Diversions (cfs)<sup>2</sup></b>	<b>Existing CCWD Diversion (cfs)</b>	<b>CEQA Baseline Flow (cfs)</b>
October	1.24	0.13	0.86	0.25
November	1.38	0.27	0.71	0.40
December	1.90	0.40	1.05	0.44
January	2.79	0.40	1.21	1.18
February	2.94	0.13	1.31	1.49
March	3.18	0.13	1.29	1.75
April	2.07	0.27	1.39	0.41
May	1.45	0.27	1.34	0.00
June	1.06	0.13	1.22	0.00
July	0.92	0.13	1.16	0.00
August	0.86	0.20	1.11	0.00
September	0.79	0.20	0.98	0.00
<b>Normal Year</b>				
	<b>Unimpaired Flow (cfs)<sup>1</sup></b>	<b>Other Diversions (cfs)<sup>2</sup></b>	<b>Existing CCWD Diversion (cfs)</b>	<b>CEQA Baseline Flow (cfs)</b>
October	1.31	0.13	0.86	0.32
November	1.61	0.27	0.71	0.64
December	3.08	0.40	1.05	1.62
January	3.70	0.40	1.21	2.08
February	4.27	0.13	1.31	2.82
March	4.35	0.13	1.29	2.93
April	3.26	0.27	1.39	1.61
May	2.25	0.27	1.34	0.64
June	1.45	0.13	1.22	0.09
July	1.14	0.13	1.16	0.00
August	1.06	0.20	1.11	0.00

September	0.97	0.20	0.98	0.00
<b>Wet Year</b>				
	<b>Unimpaired Flow (cfs)<sup>1</sup></b>	<b>Other Diversions (cfs)<sup>2</sup></b>	<b>Existing CCWD Diversion (cfs)</b>	<b>CEQA Baseline Flow (cfs)</b>
October	1.33	0.13	0.86	0.33
November	1.73	0.27	0.71	0.75
December	3.39	0.40	1.05	1.94
January	5.65	0.40	1.21	4.03
February	5.73	0.13	1.31	4.28
March	6.22	0.13	1.29	4.79
April	4.94	0.27	1.39	3.29
May	3.51	0.27	1.34	1.90
June	2.40	0.13	1.22	1.05
July	2.00	0.13	1.16	0.71
August	1.83	0.20	1.11	0.52
September	1.66	0.20	0.98	0.48

<sup>1</sup> Source: Balance Hydrologics, 2013 (**Appendix G**)

<sup>2</sup> Source: Adapted from **Table 4.8-4**

Flows on Denniston Creek immediately below the reservoir consist of spillage over and seepage through the dam. The spillage over the dam and seepage through the dam are dependent on the total hydraulic head (pressure gradient) within the system; a higher water level behind the dam puts more pressure on the system and induces more outflow, while a lower reservoir level leads to a lesser hydraulic head and less outflow. The incoming flow to the reservoir is affected by the total amount of water in the system, which is dependent on local weather patterns, and by the upstream utilization of water by the farmer, which is dependent on seasonal crop irrigation requirements. The District's diversions outside of the winter months are timed to not disrupt the farmers' diversions, determined in large part by mutual operational information sharing between the farmers and the District. Dam spillage is greatest in the winter when the incoming flow is highest and the irrigation needs of the farmer are lowest.

Although **Table 4.8-5** indicates that the baseline condition on Denniston Creek at the dam has several months (in normal and dry water years, only) where flow recedes to 0 cfs, there is a persistent baseflow in lower Denniston Creek downstream of the dam in all water year types due to the following factors:

- dam spillage and seepage;
- inflow from one minor tributary to the stream; and
- groundwater discharge into the stream channel.



Flow is present below the dam in all months, including drier summer months, in most years. Prolonged droughts, which leave only a wetted channel in Denniston Creek, are the exception to this existing normal downstream flow.

### ***Surface Water Quality***

Section 303(d) of the Clean Water Act (CWA) requires states to periodically prepare a list of all surface waters in their respective jurisdictions for which beneficial uses of the water – such as for drinking, recreation, aquatic habitat, and industrial use – are impaired by pollutants. These include water bodies that do not meet state surface water quality standards and are not expected to improve within the next two years. States establish a priority ranking of these impaired waters for purposes of developing water quality control plans that include Total Maximum Daily Loads (TMDLs). A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and includes an allocation for each of the pollutant's sources. These water quality control plans describe how an impaired water body will meet water quality standards through the use of TMDLs.

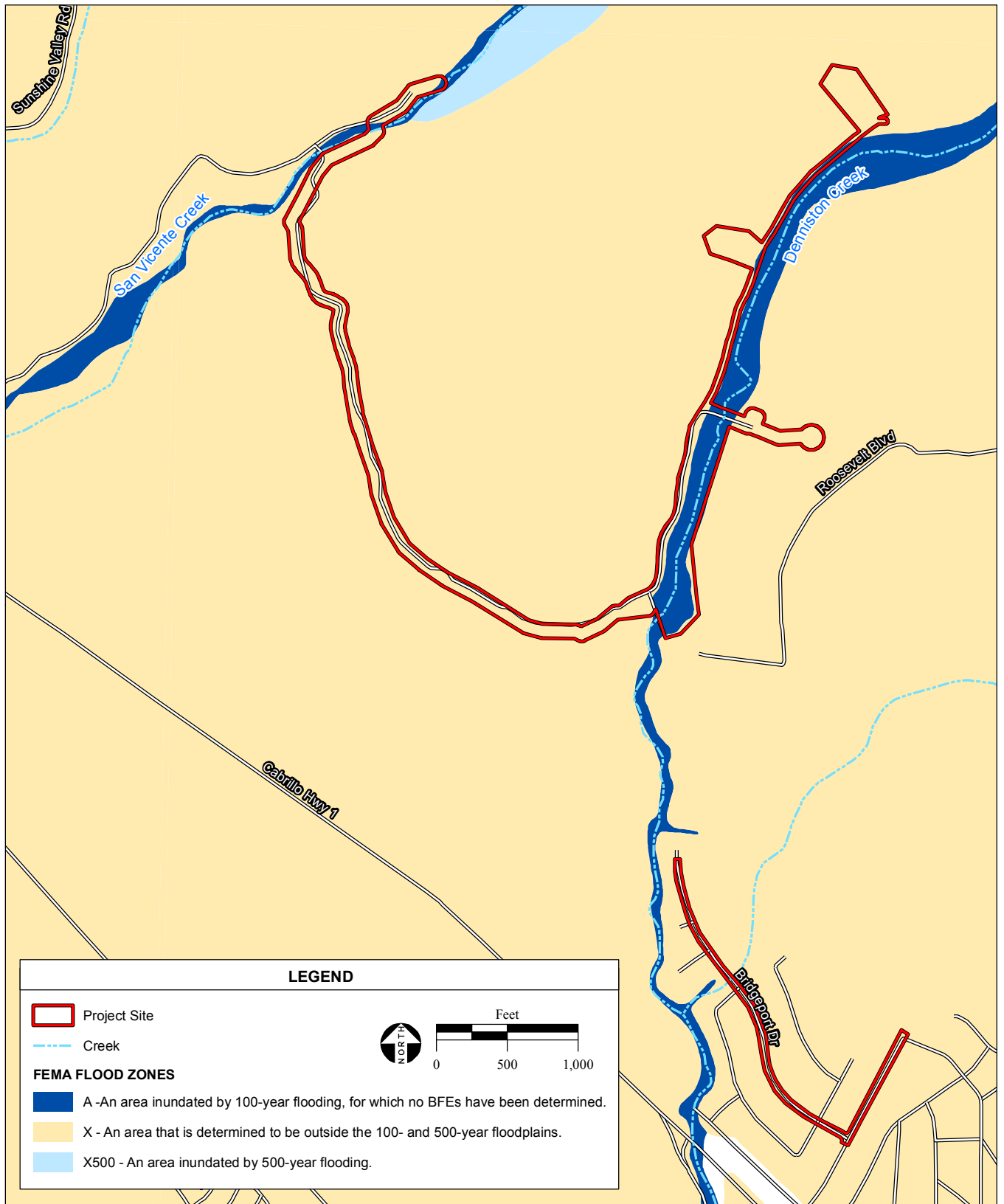
San Vicente is listed as impaired under the 303(d) list for coliform bacteria (DWR, 2010). The TMDL for San Vicente Creek is expected to be completed in 2019.

Denniston Creek is not listed as an impaired water body under the 303(d) list. However, due to the heavy composition of fine granitic particles derived from Montara Mountain, water that is pumped out of Denniston Reservoir is highly turbid, especially during storm events, and requires extensive treatment at the Denniston WTP. Please see the **Water Supply** section below for more information regarding Denniston Reservoir.

### ***Drainage and Flooding***

The topography of the project area is generally flat in the west with rolling hills in the east. Surface layer soils are characterized as being well-drained to somewhat poorly-drained (NRCS, 2013). The regional geology's unique combination of hydrologic, sedimentologic, hydrogeologic, and geomorphic processes leads to streams with muted and lagged storm and seasonal hydrographs. This suggests that the area's fractured, deeply weathered geology allows for substantial infiltration of drainage into underlying aquifers. Baseflows in the project area also tend to be higher than other more typical coastal watersheds; this is due to the gradual drainage of a larger recharge volume from rainfall due to both the weathered mantle and the soils and aquifers of the region (Balance Hydrologic, 2012; **Appendix E**).

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs), provided as **Figure 4.8-2**, designate the northwestern and southeastern parts of project area



**Figure 4.8-2**  
FEMA Flood Types

within the 100-year floodplain (FEMA, 2012). Other portions of the project site are located in an area that is determined to be outside the 100- and 500-year floodplain.

### ***Existing CCWD Water Supplies***

As noted in **Section 3.3**, the CCWD currently serves a population of approximately 20,000 customers with water from four sources: 1) imported water from the San Francisco Public Utilities Commission (SFPUC); 2) wells in the vicinity of Pilarcitos Creek; 3) Denniston Creek; and 4) wells located in the Airport Terrace Aquifer (West Yost Associates, 2010).

Surface water may be directly diverted by the CCWD from both Denniston and San Vicente Creeks under CCWD's existing water rights permit (Permit 15882). The total diversions under these permits are limited to 4.0 cfs, with a maximum of 2.0 cfs from each creek. This permit is discussed further below.

Currently, CCWD directly diverts water from Denniston Creek at the Denniston Reservoir. Between 1979 and 1989 CCWD diverted up to 811 AFY (1.89 cfs) from Denniston Creek. Since 1990, the CCWD has diverted an average of 537 AFY (with a monthly average diversion rate of up to 1.89 cfs) from Denniston Creek; the amount able to be taken from Denniston Creek declined due to siltation around the Denniston POD and limitations at the Denniston WTP, which have been resolved through recent improvements to again allow a higher rate of diversion (D. Dickson, pers. comm., 31 July 2012). The CEQA baseline conditions used in this EIR assume the higher documented usage rate by the District on Denniston Creek (1.89 cfs), consistent with the current CCWD permit and the probable water right license limit if CCWD's Petition for Extension of Time were denied.

The CCWD does not currently have a permanent diversion structure or conveyance system that can utilize its permitted right to divert (up to 2.0 cfs) from San Vicente Creek. Historic usage of the diversion on San Vicente Creek by the CCWD has been limited to some use in the 1980's, when a temporary pipeline from Upper San Vicente Reservoir to the Denniston Creek pumping station was installed and used. As previously stated, approximately 90 usable AF of water are diverted annually to storage from San Vicente Creek under the Cabrillo Farms licenses to fill two offstream storage reservoirs south of San Vicente Creek (98 AF of volume, 8 AF must remain in the reservoirs at all times). Additional diversions also occur under a riparian right (Statement 9377) on San Vicente Creek. Licensed diversions (Applications 25353 and 25355) from San Vicente Creek generally only occur during the winter months, while diversions reported under Statement 9377 of the riparian right usually occur between March through October (SWRCB, 1984a; 1984b; 2002b). One additional diversion, also under riparian right (Statement 9378), occurs above the current shared POD on San Vicente Creek and is also irrigation-season dependant.

**Application 22680 (Permit 15882)**

The CCWD has identified the need to increase its diversions from and to maximize its use of local surface supplies from Denniston and San Vicente Creeks to help provide a more secure supply water to its customers. As noted in **Section 3.1**, the CCWD is seeking approval from the SWCRB of a petition for extension of time for Water Right Permit 15882 (Application 22860) to allow sufficient time for the District to implement the necessary infrastructure upgrades and to demonstrate beneficial use through integrated use of the current permitted surface water from both streams. The infrastructure needs that were identified to put diverted water to beneficial use under this permit have not changed significantly since originally conceived. Issues, largely regulatory, with other components of the District's treatment and distribution system have delayed the completion of this portion of the District's local water supply until now.

CCWD filed Water Right Application 22680 with the State Water Rights Board (SWRB) in 1966. In 1969, the SWRCB, the successor to the SWRB, issued Water Right Permit 15882. The most recent Petition for Extension of Time was filed with the SWRCB on July 19, 2004 to request an order that would give the District sufficient time to complete the infrastructure upgrades under the Proposed Project.

The improvements proposed under the Proposed Project would increase the availability and reliability of local water sources, thereby lessening dependence on imported water from the SFPUC. This full beneficial use of approved local water supplies, combined with targeted efforts to reduce per capita water use in the CCWD service area, will enable the District to meet the future water needs of its population, which is expected to increase by approximately 15.8 percent (over 2010 population data) by 2035 (West Yost Associates, 2010). Permit 15882 allows for the direct diversion of a maximum of 4.0 cfs from both creeks during the entire year (January 1 through December 31 each year). The permit provides that the quantity diverted from either San Vicente Creek or Denniston Creek shall not exceed 2.0 cfs. If the SWRCB grants the Petition for Extension of Time, CCWD would have until December 31, 2016 to complete construction of the proposed water collection system improvements and to divert and beneficially use the water to the maximum extent authorized by Permit 15882. Water from Denniston Creek may be stored within Denniston Reservoir for a maximum of 30 days before it is pumped to the Denniston WTP. Diversion from San Vicente would be directly diverted to the Denniston pumping station from the new diversion structure and pump station, through the new pipeline, and then into the Denniston WTP. Water from San Vicente would include primarily winter flows and diversions would be timed so as not to impact other water right holders. Groundwater would continue to be used conjunctively, during times when the water supply from both creeks cannot meet demand (i.e. during consecutive drought years or dry months, as needed), and as the Denniston WTP capacity allows.

### **Groundwater Quantity**

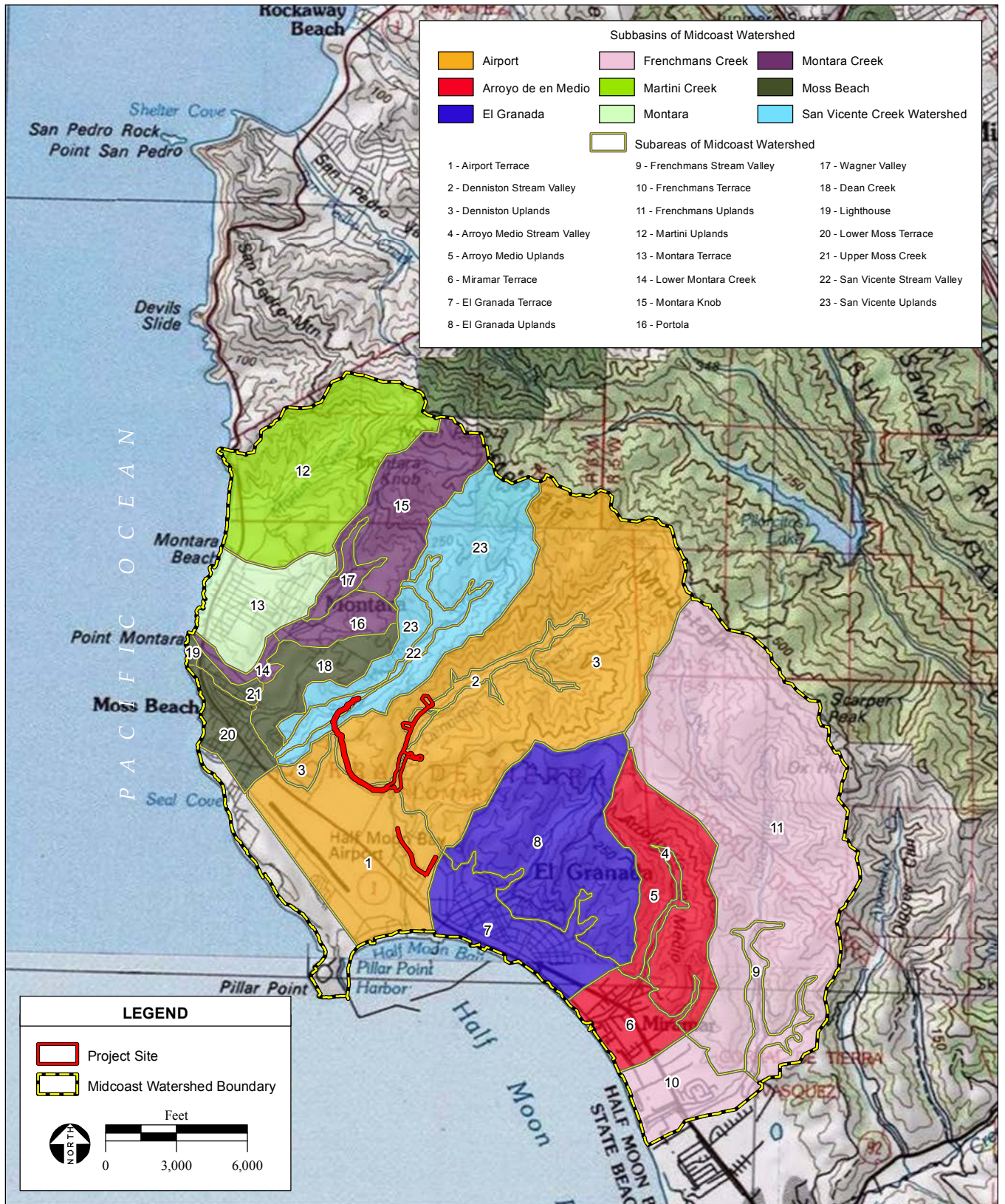
The groundwater basins within the Montara Mountains are a combination of deeply-weathered granitics, canyon alluvium, and coastal terraces (Balance Hydrologics, 2012; **Appendix E**). Weathered granitic bedrock gives Montara-type streams a unique set of hydrologic, sedimentologic, hydrogeologic, and geomorphic processes when compared to other coastal watersheds across California. The capacity of the groundwater system is large, but water is exchanged relatively slowly, due to the granitic bedrock and the almost complete absence of sand and gravel zones within the aquifers, unlike other coastal watersheds in California. This large capacity allows considerable storage, with water yielded at relatively slow rates. Rapid infiltration into the aquifer from the streams or rapid outflow from the aquifer is not reported. The groundwater system contributes to the attenuated flows in Denniston and San Vicente streams by accepting and slowly yielding considerable recharge from rainfall (Balance Hydrologics, 2012; **Appendix E**).

The area in the vicinity of the project site is part of the Half Moon Bay Terrace Basin (Basin Number 2-22) described in the Department of Water Resources (DWR) Bulletin 118. The most current version of the DWR Bulletin 118 does not contain a groundwater description for the Half Moon Bay Terrace; however, inferences suggest the Half Moon Bay Terrace Basin covers an area of approximately 9,150 acres (West Yost Associates, 2010).

In 2002, the San Mateo County Board of Supervisors commissioned a groundwater study to identify where and how much water may be safely taken from the ground from Half Moon Bay north to Devils Slide (which includes the Half Moon Bay Terrace) without posing significant risks during an extended drought to community health or environmental resources or values. The results from these studies, in addition to further studies by the California Coastal Commission (CCC) (2008), West Yost Associates (2010), Balance Hydrologics (2012) as they relate to the project area, are detailed below.

The Half Moon Bay Terrace Basin includes the Airport Subbasin, which is further divided into several subareas: the Airport Terrace Subarea, Denniston Upland Subarea, Denniston Stream Valley Subarea, San Vicente Upland Subarea, and the San Vicente Stream Valley Subarea (**Figure 4.8-3**; Kleinfelder, 2008). The Airport Subbasin has accumulated coarse-grained alluvial fan and stream deposits that are primarily made up of decomposed granite from Montara Mountain, deposited by San Vicente Creek on the north and Denniston Creek on the south (Balance Hydrologics, 2002). Extending headward along both creeks are coarse-grained alluvial aquifers and underlying fractured granitic bedrock aquifers (CCC, 2008). The Airport Aquifer has young groundwater, dated less than 10 years old, and is classified as a “highly vulnerable area” that has wide swings in seasonal fluctuation as well as drought-wet year cycles (Balance Hydrologics, 2010; 2012).





SOURCE: Kleinfelder. 2006; "Montara Mountain, CA" USGS 7.5 Minute Topographic Quadrangle, T4S & 5S R5W & 6W, Unsectioned Area of Corral de Tierra, Mt. Diablo Baseline & Meridian; AES, 2013

CCWD Denniston/San Vicente Water Supply DEIR / 211525 ■

**Figure 4.8-3**  
 Midcoast Watershed Groundwater Basins and Subareas

The project site overlays the Airport Terrace Subarea, which is approximately 871 acres and bounded by faults on the east and west and a groundwater divide to the south near San Vicente Creek and Half Moon Bay (West Yost Associates, 2010). Although the surface soils end at Half Moon Bay, the earth materials that constitute the Airport Terrace Subarea, specifically marine terrace deposits, continue to the south under the bay.

In the upper portions of the watershed, where San Vicente and Denniston Creeks originate and pass through the project site, significant slopes and generally rapid water drainage lead to relatively limited storage capacity of groundwater within the immediate vicinity of the recharge areas. However, recent data suggest that the areas upstream of the Proposed Project's PODs provide large amounts of recharge to the groundwater basin (Balance Hydrologics, 2014; **Appendix H**). Percolated water is not stored in the granitic bedrock around the creeks, but travels relatively quickly to the terrace deposits, where it accumulates (Kleinfelder, 2008). The surface water flowing through Denniston Creek that infiltrates to groundwater stays almost exclusively within the Airport Terrace Subarea. Surface water from San Vicente Creek that infiltrates to groundwater is divided into two groundwater basins, with approximately 85 percent feeding the Lower Moss Beach Subarea and 15 percent infiltrating to the Airport Terrace Subarea (Kleinfelder, 2008).

Precipitation is the main source of recharge for the Airport Terrace Subarea (Kleinfelder, 2008). Using over 55 years of precipitation records and adjusting for orographic and other effects caused by the hilly terrain, Kleinfelder (2008) estimates that approximately 600 AF of water derived from precipitation runs off the land while about 120 AF of water percolates directly into the Airport Terrace Subarea each year. Balance Hydrologics (2014) found that the Airport Aquifer below the project site "refills quickly and completely following the first storms of each rainy season," further suggesting that precipitation plays a large role in this aquifer system (**Appendix H**). Since the 1950's, groundwater levels in the project area have remained steady, with no apparent long-term fluctuations in water levels (Balance Hydrologics, 2002). Balance Hydrologics (2002) estimates that a total of 2,900 AF of water storage occurs in unconsolidated material including pocket aquifers, and approximately 3,300 AF of water occurs in fractured bedrock within the Airport Terrace Subarea. Surface to groundwater interactions are considerable in the San Vicente and Denniston Creek watersheds, and groundwater recharge from Denniston Creek through the Airport Terrace Subarea is significant during the dry season (Balance Hydrologics, 2010). Recent data collected by Balance suggest that Denniston Creek provides approximately 180 AFY of groundwater recharge, which is "far less than previously estimated contributions from Denniston Creek, which was most recently estimated by Kleinfelder (2008) to be approximately 790 AFY" (Balance, 2014; **Appendix H**).

Balance Hydrologics has been collecting data along San Vicente and Denniston Creeks for multiple years to determine the nature of the groundwater in the vicinity of the project site. Their



recent data, presented in **Appendix H**, used stream gaging, well monitoring, and specific conductance data to monitor and extrapolate the groundwater-surface water interaction along San Vicente and Denniston Creeks. The data collected on San Vicente Creek determined that there are “measureable groundwater discharges into San Vicente Creek” from the underlying aquifer. Therefore, San Vicente Creek is a gaining stream in the reaches downstream of the Proposed Project’s POD.

Groundwater outflows from the Airport Subbasin occur as pumpage, outflow to the ocean, persistent baseflow to streams, and evapotranspiration. Groundwater is extracted by several water users, including the Montara Water and Sanitary District (MWSD), the Pillar Ridge Manufactured Home Community (PRMHC), and the CCWD (Balance Hydrologics, 2010). The MWSD has three production wells along Highway 1 and near the Airport. The PRMHC operates four wells, but one is currently inactive. The MWSD supplies water to the PRMHC when their wells are incapable of meeting demand or when the quality of their well water is poor. Due to a growing dependency on the basin, and the fact that the Airport Sub-basin interfaces with the ocean at Half Moon Bay, in 1994 the CCC adopted a limit of 459 AFY on groundwater extractions to ensure seawater intrusion is avoided and impacts to the regional marsh habitats were avoided. The Coastal Development Permit (CDP) issued in 1976 for CCWD’s Denniston Well Field limits the annual total production from the wells to 130 MG/year (approximately 399 AFY) (West Yost Associates, 2010). Water from the Denniston Well Field is an important part of the CCWD’s goal of increasing utilization of local water supplies in order to meet future project demand for water (West Yost Associates, 2010) (**Figure 4.8-3**).

Kleinfelder (2008), Lowney-Kaldveer (1974), and Luhdorf and Scalmanini (1991) all concluded that the Airport Terrace Subarea is “in general long-term balance” (Kleinfelder, 2008). During drought years, some decline in water levels has been observed. However, outflow to the oceans has also dropped during drought years, reducing the impact of drought conditions, and the water table has been observed to recover rapidly during wet years (Kleinfelder, 2008).

As noted above, surface streams within the project area are utilized by a number of water permit holders for agricultural and consumption uses. Due to the unique geology of the watershed, the aquifer refills quickly and nearly completely from precipitation, and groundwater outflow is not rapid, allowing for lower peak runoffs and more baseflows to feed the watershed streams throughout the year. Additionally, the diversion to irrigation and to storage on these streams allows more time for surface water to percolate into groundwater, thereby facilitating the recharge of the Airport Terrace Aquifer.

### ***Groundwater Quality***

The region’s deeply weathered granitic mantle produces high quality groundwater with low mineral content (Balance Hydrologics, 2012; **Appendix E**). Regional groundwater from the

weathered granitics of Montara Mountain typically produce waters with total dissolved solids (TDS) content of 150 to 300 mg/L, roughly 25 to 35 percent of the minerals found in the Purisima aquifer, the other principal source of groundwater in the Midcoast (Balance Hydrologics, 2012; **Appendix E**). Streams emanating from the granitics have the same low TDS content. At least one study by Balance Hydrologics (2005) also reports high nitrate levels in the northernmost part of the Half Moon Bay Terrace Basin, which requires pumped groundwater used for domestic supply to be blended with surface water of lower nitrate concentration; however, the location of this well is outside the proposed project area. Possible sources of nitrate and nitrogen include fertilizer use for agriculture in the region and the Airport restaurant's septic leach field.

As noted above, the Airport Terrace Subarea interfaces with the ocean at Half Moon Bay; therefore the potential for seawater intrusion is a source of concern. Presently, chloride concentrations in the area's groundwater are low and do not appear to indicate the occurrence of seawater intrusion at past or current levels of groundwater production (Balance Hydrologics, 2002).

Nutrients, specifically nitrogen and phosphorus, are essential for life and play a primary role in ecosystem functions. In addition to naturally present concentrations in the atmosphere and organic matter, nutrients are introduced to water bodies through human or animal waste disposal or agricultural application of fertilizers. Nutrients are commonly the limiting factor for growth in aquatic systems; however, excessive levels of nutrients affect aquatic systems in a wide range of ways, including producing toxic or eutrophic conditions, both of which impair aquatic life.

The open, rechargeable nature of the project area's weathered granitics, and the alluvial and colluvial deposits derived from them, makes them susceptible to constituents introduced from the surface, including chemicals and sediment from erosion.

Nitrate, which only rarely is found in elevated concentrations in natural systems, is a principal constituent which enters these open systems from various land and water uses in the area. As deeply-weathered granitic rocks yield low-mineralized, high quality waters throughout California's central coast, the baseflow emanating from the granitic aquifers in the region are of high quality with a low mineral composition. Because the area's soils are open to recharge, nitrates and other surficial contaminants can enter the soils and aquifers with few restrictive horizons to attenuate the deep percolation of constituents (Balance Hydrologics, 2012; **Appendix E**). As mentioned above, San Vicente Creek is listed as impaired under the 303(d) list for coliform bacteria (DWR, 2010). According to the SWRCB, the TMDL has not yet been defined for San Vicente Creek, but is anticipated to be defined by 2019. Denniston Creek is not listed on the 303(d) list.

Denniston and San Vicente Creeks will transport a very high proportion of sediment in comparison to other coastal creeks; specifically, the bedload and suspended load are moved at approximately equal transport rates, unlike other non-Montara type channels (Balance Hydrologics, 2012; **Appendix E**). Denniston and San Vicente Creeks transport sediment compositions that are almost exclusively sands of granitic origin. This combination of sandy watersheds and high summer flows (due to the slower percolation of baseflows from the granitic aquifer) results in a high sediment yield draining into the ocean throughout the year from the creeks (Balance Hydrologics, 2012; **Appendix E**). Erosion from the vicinity of the project site and surrounding area likely enters the channels following major storms, wildfires, and floods (Balance Hydrologics, 2012; **Appendix E**). Sediment enters the channels during these episodic events from the surrounding hillsides, often accumulating into colluvial wedges that are eventually incised by rills and gullies during the intervening periods between storm events. Logjams within channels provide channel stability and grade control, and woody plants within the riparian zone prevent rapid incision and stabilize channel beds.

### 4.8.3 REGULATORY SETTING

There are several federal, State, and local laws, policies, and regulations that apply to hydrology and water quality for the Proposed Project.

#### Federal

##### ***Clean Water Act (CWA)***

The CWA (33 USC §§ 1251-1376), is the major federal statute governing water quality. The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” Important sections of the CWA are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 (Water Quality Certification) requires an applicant for any federal permit that proposes an activity, which may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the CWA and state water quality laws. The Water Quality Certification may serve as both a certification for a federal permit, under Section 401 of the CWA, and a Waste Discharge Requirement under the Porter-Cologne Water Quality Control Act.
- Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the Regional Water Quality Control Boards (RWQCBs) and is discussed in detail below.

- Section 404 establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is administered by the United States Army Corps of Engineers (USACE).

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are “impaired” (i.e., not meeting one or more of the water quality standards established by the state). Once a water body or segment is listed, the state is required to establish a TMDL for the pollutant causing the conditions of impairment. The TMDL is the quantity of a pollutant that can be safely assimilated by a water body without violating water quality standards. The intent of the 303(d) list is to identify the water body as requiring future development of a TMDL to maintain water quality and reduce the potential for continued water quality degradation. The San Francisco Regional Water Quality Control Board (SFRWQCB) has identified waters that are polluted and need further attention to support their beneficial uses. The 303(d) list includes the San Vicente Creek for coliform bacteria.

### ***Federal Anti-degradation Policy***

The Federal Antidegradation Policy is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that includes the following primary provisions: (1) existing instream uses and the water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and (3) where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

### ***Safe Drinking Water Act***

Under the Safe Drinking Water Act (SDWA) (Public Law 93-523), passed in 1974, the United States Environmental Protection Agency (EPA) regulates contaminants of concern to domestic water supply. Contaminants of concern relevant to domestic water supply are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA primary and secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed triennially. Amendments to the SDWA enacted in 1986 established an accelerated schedule for setting drinking water MCLs.

### ***Federal Emergency Management Agency***

San Mateo County is a participant in the National Flood Insurance Program (NFIP), a Federal program administered by FEMA. Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 adopted a desired level of protection that would protect developments from floodwater damage associated with an Intermediate Regional Flood (IRF), a flood which is defined as having an average frequency of occurrence on the order of once in 100 years, although such a flood may occur in any given year.

### ***U.S. Army Corps of Engineers (USACE)***

- The USACE has jurisdiction and permitting authority under Section 10 of the Rivers and Harbors Act of 1899 over the Nation's waterways and their associated wetlands. The USACE also has authority under Section 404 of the CWA to protect the quality of the Nation's waters. The USACE regulates potential impacts on wetlands, threatened or endangered species, other valuable fish and wildlife resources, and cultural resources found in wetland areas.
- Both dredging and filling of waters under the USACE protection are activities regulated by the USACE. The Section 404 permit program for discharge of fill or dredged materials into waters of the U.S. may be applicable to the Proposed Project. The general criteria for such discharges is to have "no net loss" of wetlands due to project impacts, essentially requiring compensatory mitigation.

## **State**

### ***State Water Resources Control Board and Regional Water Quality Control Boards***

The SWRCB and the nine RWQCBs have the authority in California to protect and enhance water quality, both as the lead agencies in implementing the Section 319 nonpoint source NPDES program of the federal CWA, and from the state's primary water-pollution control legislation, the Porter-Cologne Water Quality Control Act. The SWRCB is also responsible for processing water rights applications, the issuance of permits and licenses, as well as evaluating petitions for extensions of time for existing water rights permits through the Division of Water Rights (Division). The Proposed Project is within the jurisdiction of the San Francisco Bay RWQCB.

### ***California Department of Fish and Wildlife (CDFW)***

- The CDFW has authority over resources associated with rivers, streams, and lakes under California Fish and Game Code Section 1600 to 1616. The CDFW has authority to regulate development and other work that will: substantially divert, obstruct or change the natural flow of a river, stream or lake; substantially change the bed, channel or bank

of a river, stream, or lake; or use material from a streambed. Typical activities regulated by the CDFW include re-channeling and diverting streams, stabilizing banks, implementing flood control projects, river and stream crossings, diverting water, damming streams, gravel mining, and logging operations.

- The CDFW should be contacted if any portion of the project would interfere with a water course under the CDFW's jurisdiction. Alterations to the wetlands on-site are planned, and these alterations may require a permit from the CDFW. Once such a permit is acquired and permit conditions are met, the project should be in compliance with the CDFW regulations protecting wetlands and surface waters in California.
- To issue a Streambed Alteration Agreement (SAA), CDFW will need to ensure the project complies with all other provisions of the California Fish and Game Code, including the California Endangered Species Act.

### ***California Coastal Commission (CCC)***

- The California Coastal Act created the CCC, an independent, quasi-judicial state agency which regulates development along California's coastline. In addition to preserving the coastline, the CCC also is charged with wetland preservation. Regional regulation is implemented by Local Coastal Programs (LCPs), which are prepared by the cities and counties located within the coastal zone. Prior to beginning construction, development within the "Coastal Zone" also requires a Coastal Development Permit.
- The San Mateo LCP, which has been certified by the CCC, defines wetlands as areas "where the water table is at, near, or above the land surface long enough to bring about the formation of hydric soils, or to support the growth of plants which are normally found to grow in water or wet ground" (San Mateo County, 1998). The San Mateo LCP is discussed further below.

### ***Porter-Cologne Water Quality Act***

The Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.) provides the basis for water quality regulation within California. The Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state.

### ***State Antidegradation Policy***

In 1968, as required under the Federal Antidegradation Policy described previously, the SWRCB adopted an Antidegradation Policy aimed at maintaining high quality for waters in California. The Antidegradation Policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state.

The policy provides as follows:

- a. Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the state and would not unreasonably affect present and anticipated beneficial uses of such water.
- b. Any activity which produces waste or increases the volume or concentration of waste and which discharges to existing high-quality waters would be required to meet waste discharge requirements which would ensure (1) pollution or nuisance would not occur and (2) the highest water quality consistent with the maximum benefit to the people of the state would be maintained.

### ***San Francisco Bay Water Quality Control Plan (Basin Plan)***

The San Francisco Bay RWQCB regulates water quality in the Bay area in accordance with its Water Quality Control Plan, often referred to as the “Basin Plan” (San Francisco RWQCB, 2013). The Basin Plan presents the beneficial uses, which the RWQCB has specifically designated for local aquifers, streams, marshes, rivers, and the Bay, as well as the water quality objectives and criteria that must be met to protect these uses.

### **Local**

San Mateo County’s 1986 General Plan (General Plan) seeks to promote the conservation, enhancement, protection, maintenance, and managed use of the County’s vegetation, water, fish, and wildlife resources. The following General Plan guiding and implementation policies are applicable to the Proposed Project.

### ***Vegetation, Water, Fish, and Wildlife Resources Policies***

The following General Plan guiding and implementation policies associated with hydrological resources are applicable to the Proposed Project.

#### *Guiding Policies*

##### 1.25: Protect Water Resources

- Ensure that development will 1) minimize the alteration of natural water bodies; 2) maintain adequate stream flows and water quality for vegetative, fish, and wildlife habitats; 3) maintain and improve, if possible, the quality of groundwater basins and recharge areas; and 4) prevent to the greatest extent possible the depletion of groundwater resources.



*Implementing Policies*

1.28: Establish buffer zones

- Establish necessary buffer zones adjacent to sensitive habitats which include areas that directly affect the natural conditions in the habitat.

1.36: Protect the Productive Use of Water Resources

- Ensure that land uses and development on or near water resources will not impair the quality or productive capacity of these resources.

1.40: Encourage Coordinated, Countywide Management of Vegetative, water, fish, and wildlife resources

- Encourage all federal, state, regional, County, and city agencies with jurisdiction in San Mateo County to cooperate and coordinate the management and protection of vegetative, water, fish, and wildlife resources.

***San Mateo Local Coastal Policy***

2.32: Groundwater Proposal

- Require, if new or increased well production is proposed to increase supply, that:
  - a. Water quality be adequate, using blending if required, to meet the water standards of Policy 2.30.
  - b. Wells are installed under inspection according to the requirements of the State and County Department of Public Health.
  - c. The amount pumped be limited to a safe yield factor which will not impact water dependent sensitive habitats, riparian habitats and marshes.

5.23: Priorities for Agricultural Water Supplies

- Recommend to the California State Water Resources Control Board that when issuing permits for appropriate water rights they establish the following priorities:
  - a. The protection of minimum stream flows as determined by the State Department of Fish and Wildlife;
  - b. New and existing agricultural operations;
  - c. New and existing farm family and farm labor housing;
  - d. Coastal-dependent uses;
  - e. Public recreation and visitor-serving facilities;
  - f. Other.

7.7: Definition of Riparian Corridors

- Define riparian corridors by the “limit of riparian vegetation” (i.e., a line determined by the association of plant and animal species normally found near streams, lakes and other

bodies of freshwater: red alder, jaumea, pickleweed, big leaf maple, narrow-leaf cattail, arroyo willow, broadleaf cattail, horsetail, creek dogwood, black cottonwood, and box elder). Such a corridor must contain at least a 50% cover of some combination of the plants listed.

### 7.9: Permitted Uses in Riparian Corridors

- Within corridors, permit only the following uses: (1) education and research, (2) consumptive uses as provided for in the Fish and Game Code and Title 14 of the California Administrative Code, (3) fish and wildlife management activities, (4) trails and scenic overlooks on public land(s), and (5) necessary water supply projects.

## 4.8.4 IMPACTS AND MITIGATION MEASURES

### Method of Analysis

This section identifies the impacts to hydrology and water quality that could occur from construction, operation, and/or maintenance of the Proposed Project. An examination of the project site, project components, and published information regarding the water resources in the project area was conducted to determine impacts to hydrology and water quality.

As discussed in **Section 3.0**, Project Description, the Proposed Project includes a petition for extension of time to develop necessary infrastructure so that authorized diversions from San Vicente and Denniston Creeks may be applied to beneficial use. Part of the infrastructure improvements includes expanding the capacity of the Denniston WTP to 1,500 gallons per minute (gpm; 3.34 cfs) in order to increase security and availability of local water supplies, and to reduce the use of imported water from SFPUC.

This EIR will analyze the impacts of two CCWD surface diversion scenarios, each one prioritizing the diversion and use of water from one creek: the San Vicente Preferred and Denniston Preferred scenarios. These two scenarios represent the maximum amounts of water that CCWD could feasibly divert under Permit 15882 based on the largest WTP capacity upgrade as proposed by the District. Under each scenario, the primary source of water is from the preferred stream, with additional water taken from the other stream as needed, up to the capacity of the Denniston WTP. Although actual CCWD diversions will be operationally balanced between the two streams based on factors such as water availability, water year type, and other diverters' usage, this analysis of these two scenarios provides for the maximum range of impacts that could arise in each creek from implementation of the Proposed Project.

### ***San Vicente Creek***

According to modeling done by Balance Hydrologics (2013), San Vicente Creek reaches its lowest flows in September, and peaks in winter months (approximately January to February).

The average annual flow in San Vicente Creek is approximately 1.72 cfs, and the unimpaired volume of water is 1,230 AFY in a wet year. In normal years, the average flow is approximately 1.07 cfs (764 AFY), and in dry years, the average flow is approximately 0.75 cfs (534 AFY) (please see **Table 4.8-3**).

A term of Water Right Permit 15882 (Application 22860) requires a wetted channel passing the southerly boundary of Torello Ranch (NW ¼ of NW ¼ of Section 2, Township 5S, Range 6W, Mount Diablo Baseline and Meridian) before diversions may occur between June 1 and October 1. This corresponds to a location near to, but downstream of, the San Vicente POD (37.5317 North, -122.4919 West).

Under the San Vicente Preferred scenario, the District would divert the maximum amount of surface water from San Vicente Creek that is available, up to the authorized 2.0 cfs. The District would divert additional water from Denniston Creek, up to the maximum capacity of the Denniston WTP. **Table 4.8-6** below shows the maximum amounts of water that CCWD could divert in a dry, normal, or wet water year under this scenario. Average rainfall is the average annual precipitation that falls in a region in one hydrologic year (also referred to as a water year; the period from October 1 to September 31 of the subsequent year). A dry year is defined as any year with less than 85 percent of the average annual rainfall. A water year is considered normal if it falls between 85 and 120 percent of the average annual precipitation for that area. A wet year is defined as any year with greater than 120 percent of the average annual precipitation.

To be effective, the POD structure pictured in **Figure 3-4** will require some type of in-channel diversion to move water into the diversion structure. Based on the design of the structure, some water will bypass the screened diversion; however at this point it is impossible to quantify that bypass flow. Below is an impact analysis assuming that resulting creek flows on San Vicente Creek are 0.0 cfs (the totality of the stream is diverted) in some months. However, some bypass will occur, although it is an unquantifiable amount that is not taken into account in **Table 4.8-6**.

**TABLE 4.8-6**  
SAN VICENTE PREFERRED SCENARIO

Dry Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs) <sup>1</sup>	Proposed Project Diversions (cfs) <sup>2</sup>	Resulting Creek Flows (cfs) <sup>3</sup>	CEQA Baseline Flow (cfs) <sup>4</sup>	Proposed Project Diversions (cfs)	Resulting Creek Flows (cfs)
October	0.25	0.25	0.00	0.42	0.42	0.00
November	0.40	0.40	0.00	0.29	0.29	0.00

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December	0.44	0.44	0.00	0.39	0.39	0.00
January	1.18	0.43	0.75	0.86	0.86	0.00
February	1.49	0.00	1.49	1.09	1.09	0.00
March	1.75	0.32	1.43	1.16	1.16	0.00
April	0.41	0.41	0.00	0.50	0.50	0.00
May	0.00	0.00	0.00	0.30	0.30	0.00
June	0.00	0.00	0.00	0.34	0.34	0.00
July	0.00	0.00	0.00	0.29	0.29	0.00
August	0.00	0.00	0.00	0.18	0.18	0.00
September	0.00	0.00	0.00	0.14	0.14	0.00
<b>Total (AFY)</b>	<b>353</b>	<b>134</b>	<b>219</b>	<b>354</b>	<b>354</b>	<b>0</b>
<b>Normal Year</b>						
	<b>Denniston Creek</b>			<b>San Vicente Creek</b>		
	<b>CEQA Baseline Flow (cfs)<sup>1</sup></b>	<b>Proposed Project Diversions (cfs)<sup>2</sup></b>	<b>Resulting Creek Flows (cfs)<sup>3</sup></b>	<b>CEQA Baseline Flow (cfs)<sup>4</sup></b>	<b>Proposed Project Diversions (cfs)</b>	<b>Resulting Creek Flows (cfs)</b>
October	0.32	0.32	0.00	0.45	0.45	0.00
November	0.64	0.64	0.00	0.44	0.44	0.00
December	1.62	0.43	1.19	1.14	1.14	0.00
January	2.08	0.00	2.08	1.34	1.34	0.00
February	2.82	0.00	2.82	1.92	1.92	0.00
March	2.93	0.00	2.93	1.65	1.65	0.00
April	1.61	0.61	0.99	0.97	0.97	0.00
May	0.64	0.64	0.00	0.55	0.55	0.00
June	0.09	0.09	0.00	0.45	0.45	0.00
July	0.00	0.00	0.00	0.39	0.39	0.00
August	0.00	0.00	0.00	0.28	0.28	0.00
September	0.00	0.00	0.00	0.23	0.23	0.00
<b>Total (AFY)</b>	<b>758</b>	<b>162</b>	<b>596</b>	<b>584</b>	<b>584</b>	<b>0</b>
<b>Wet Year</b>						
	<b>Denniston Creek</b>			<b>San Vicente Creek</b>		
	<b>CEQA Baseline Flow (cfs)<sup>1</sup></b>	<b>Proposed Project Diversions (cfs)<sup>2</sup></b>	<b>Resulting Creek Flows (cfs)<sup>3</sup></b>	<b>CEQA Baseline Flow (cfs)<sup>4</sup></b>	<b>Proposed Project Diversions (cfs)</b>	<b>Resulting Creek Flows (cfs)</b>
October	0.33	0.33	0.00	0.50	0.50	0.00
November	0.75	0.75	0.00	0.59	0.59	0.00
December	1.94	0.23	1.71	1.34	1.34	0.00
January	4.03	0.00	4.03	3.01	2.00	1.01
February	4.28	0.00	4.28	3.11	2.00	1.11
March	4.79	0.00	4.79	3.24	2.00	1.24
April	3.29	0.00	3.29	1.95	1.95	0.00
May	1.90	0.66	1.24	1.01	1.01	0.00

June	1.05	0.78	0.27	0.86	0.86	0.00
July	0.71	0.71	0.00	0.81	0.81	0.00
August	0.52	0.52	0.00	0.65	0.65	0.00
September	0.48	0.48	0.00	0.58	0.58	0.00
<b>Total (AFY)</b>	<b>1,433</b>	<b>266</b>	<b>1,167</b>	<b>1,050</b>	<b>850</b>	<b>200</b>

<sup>1</sup> On Denniston Creek, the CEQA baseline flow includes the monthly diversions (totaling a maximum of 811 AFY) that the District is authorized to divert.

<sup>2</sup> The "Proposed Project Diversions" are anything above the District's current diversions (monthly diversion data for Denniston Creek is shown in **Table 4.8-5** above, while existing diversions on San Vicente Creek are 0.00 cfs, as shown in **Table 4.8-4**).

<sup>3</sup> Resulting creek flows are the flows in each creek after diversions by the farmer and by the District.

<sup>4</sup> The CEQA Baseline Flow on San Vicente Creek is calculated in **Table 4.8-3** above.

### ***Denniston Creek***

Currently, flows downstream of the Denniston Reservoir are partly based on water that spills from the existing dam. The timing of flows in Denniston Creek follows a similar flow profile to the San Vicente Creek profile, but overall more water flows through Denniston Creek. In wet years, the average flow is 3.37 cfs (2,404 AFY); in normal years the average flow is 2.37 cfs (1,693 AFY); and in dry years, the average flow is approximately 1.72 cfs (1,224 AFY) (please see **Table 4.8-5**).

Under the Denniston Preferred scenario, the District would divert the maximum amount of surface water from Denniston Creek that is available, up to the authorized 2.0 cfs. The District will divert additional water from San Vicente Creek, up to the maximum capacity of the Denniston WTP. **Table 4.8-7** below shows the maximum amount of water that CCWD could divert in a dry, normal, or wet water year under this scenario.

**TABLE 4.8-7**  
DENNISTON PREFERRED SCENARIO

<b>Dry Year</b>						
	<b>Denniston Creek</b>			<b>San Vicente Creek</b>		
	<b>CEQA Baseline Flow (cfs)<sup>1</sup></b>	<b>Proposed Project Diversions (cfs)<sup>2</sup></b>	<b>Resulting Creek Flows (cfs)<sup>3</sup></b>	<b>CEQA Baseline Flow (cfs)<sup>4</sup></b>	<b>Proposed Project Diversions (cfs)<sup>2</sup></b>	<b>Resulting Creek Flows (cfs)</b>
October	0.25	0.25	0.00	0.42	0.42	0.00
November	0.40	0.40	0.00	0.29	0.26	0.03
December	0.44	0.44	0.00	0.39	0.39	0.00
January	1.18	0.79	0.39	0.86	0.50	0.36
February	1.49	0.69	0.81	1.09	0.37	0.73

4.8 Hydrology and Water Quality

March	1.75	0.71	1.04	1.16	0.77	0.39
April	0.41	0.41	0.00	0.50	0.50	0.00
May	0.00	0.00	0.00	0.30	0.30	0.00
June	0.00	0.00	0.00	0.34	0.34	0.00
July	0.00	0.00	0.00	0.29	0.29	0.00
August	0.00	0.00	0.00	0.18	0.18	0.00
September	0.00	0.00	0.00	0.14	0.14	0.00
<b>Total (AFY)</b>	<b>353</b>	<b>220</b>	<b>133</b>	<b>354</b>	<b>265</b>	<b>89</b>
<b>Normal Year</b>						
	<b>Denniston Creek</b>			<b>San Vicente Creek</b>		
	<b>CEQA Baseline Flow (cfs)<sup>1</sup></b>	<b>Proposed Project Diversions (cfs)<sup>2</sup></b>	<b>Resulting Creek Flows (cfs)<sup>3</sup></b>	<b>CEQA Baseline Flow (cfs)<sup>4</sup></b>	<b>Proposed Project Diversions (cfs)<sup>2</sup></b>	<b>Resulting Creek Flows (cfs)</b>
October	0.32	0.32	0.00	0.45	0.45	0.00
November	0.64	0.64	0.00	0.44	0.44	0.00
December	1.62	0.95	0.67	1.14	0.63	0.52
January	2.08	0.79	1.29	1.34	0.50	0.85
February	2.82	0.69	2.13	1.92	0.37	1.55
March	2.93	0.71	2.22	1.65	0.77	0.88
April	1.61	0.61	0.99	0.97	0.97	0.00
May	0.64	0.64	0.00	0.55	0.55	0.00
June	0.09	0.09	0.00	0.45	0.45	0.00
July	0.00	0.00	0.00	0.39	0.39	0.00
August	0.00	0.00	0.00	0.28	0.28	0.00
September	0.00	0.00	0.00	0.23	0.23	0.00
<b>Total (AFY)</b>	<b>758</b>	<b>323</b>	<b>435</b>	<b>584</b>	<b>358</b>	<b>226</b>
<b>Wet Year</b>						
	<b>Denniston Creek</b>			<b>San Vicente Creek</b>		
	<b>CEQA Baseline Flow (cfs)<sup>1</sup></b>	<b>Proposed Project Diversions (cfs)<sup>2</sup></b>	<b>Resulting Creek Flows (cfs)<sup>3</sup></b>	<b>CEQA Baseline Flow (cfs)<sup>4</sup></b>	<b>Proposed Project Diversions (cfs)<sup>2</sup></b>	<b>Resulting Creek Flows (cfs)</b>
October	0.33	0.33	0.00	0.50	0.50	0.00
November	0.75	0.75	0.00	0.59	0.59	0.00
December	1.94	0.95	0.99	1.34	0.63	0.72
January	4.03	0.79	3.24	3.01	0.50	2.51
February	4.28	0.69	3.60	3.11	0.37	2.74
March	4.79	0.71	4.08	3.24	0.77	2.48
April	3.29	0.61	2.67	1.95	1.25	0.69
May	1.90	0.66	1.24	1.01	1.01	0.00
June	1.05	0.78	0.27	0.86	0.86	0.00
July	0.71	0.71	0.00	0.81	0.81	0.00
August	0.52	0.52	0.00	0.65	0.65	0.00

September	0.48	0.48	0.00	0.58	0.58	0.00
<b>Total (AFY)</b>	<b>1,433</b>	<b>475</b>	<b>958</b>	<b>1,050</b>	<b>506</b>	<b>544</b>

<sup>1</sup> On Denniston Creek, the CEQA baseline flow includes the monthly diversions (totaling a maximum of 811 AFY) that the District is authorized to divert. This is calculated in **Table 4.8-5** above.

<sup>2</sup> The "Proposed Project Diversions" are anything above the District's current diversions (monthly diversion data for Denniston Creek is shown in **Table 4.8-5** above, while existing diversions on San Vicente Creek are 0.00 cfs, as shown in **Table 4.8-4**).

<sup>3</sup> Resulting creek flows are the flows in each creek after diversions by the farmer and by the District.

<sup>4</sup> The CEQA Baseline Flow on San Vicente Creek is calculated in **Table 4.8-3** above.

As noted above, each scenario identifies the maximum diversion of water that could occur from one stream, up to the 2.0 cfs authorized under the permit and based on the amount of water available from that stream, with additional water, up to the Denniston WTP capacity, being diverted from the other creek. The CEQA Baseline Flow for Denniston Creek (calculated in **Table 4.8-5**, above) shows the creek flow receding to 0 cfs in some months out of the year (in dry and normal water year types) due to existing diversions. However, as discussed in **Section 4.8.2** (on page 4.8-10), there is a persistent baseflow in Denniston Creek that results from the spillage over and seepage under the dam at Denniston Reservoir, inflow from an unnamed tributary, and groundwater exfiltration into the stream channel. Dam seepage is pictured in **Figure 4.3-2d: Photograph 19**. The effect of the Proposed Project would be to reduce the spillage over the dam, but the other factors that contribute to Denniston Creek baseflow would not be altered by the Proposed Project.

The actual diversions will likely vary due to conditions such as the minimum flow needed to divert through the proposed new POD structure on San Vicente Creek and the operations of the other diverters. These two scenarios as set forth in this EIR provide a basis to analyze the maximum possible impacts to each creek.

### Thresholds of Significance

Based on Appendix G of the CEQA *Guidelines*, the Proposed Project would have a significant environmental impact to hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);



- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increases the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam;
- Result in inundation by seiche, tsunami, or mudflow; or
- Change the water volume and/or pattern of seasonal flows that could result in a significant reduction in water supply downstream of the diversion for senior water right holders and a significant reduction in the available aquatic habitat or riparian habitat for native species of plants or animals.

### Impacts and Mitigation Measures

#### **IMPACT 4.8-1 Construction activities may substantially degrade surface water and/or groundwater quality.**

Construction-related earth disturbing activities associated with the Proposed Project would involve:

- Diversion structure, piping, and pump station on San Vicente Creek – land clearing and soil disturbance to clear existing soil for approximately 6,100 feet of piping from the San Vicente POD to the existing Denniston pump station, a new distribution pump station located at the POD, and a new permanent diversion structure to replace the semi-permanent structure currently in use at the POD on San Vicente Creek;
- Denniston WTP capacity upgrade – these improvements would not involve clearing of new land;
- Booster Pump Station – the Booster Pump Station would be installed adjacent to the existing Denniston Pump Station and would not involve earth disturbing activities;
- Upgrade of the Bridgeport Pipeline – approximately 3,460 feet of pipeline will be placed below Bridgeport Drive within already developed areas; and
- Expanded sediment removal program – removing sediment from Denniston Reservoir would involve dredging and storage on two sites north of the reservoir: the Westerly

Sand Disposal Area and the Easterly Sand Disposal Area. This is an ongoing activity to maintain and expand the current capacity of the Denniston Reservoir.

Disturbed areas, stockpiled soils, and sediment exposed to winter rainfall could lead to sediment discharge into surface waters, resulting in a degradation of water quality. In addition, construction equipment and materials have the potential to leak, thereby discharging additional pollutants into local waterways. Pollutants potentially include particulate matter, sediment, oil, and grease in addition to construction supplies such as concrete, paint, and adhesives. Changes to drainage patterns, resulting from construction activities, could result in discharge of these pollutants into surface waterways, causing an exceedance of water quality objectives which could adversely impact beneficial uses of downstream water resources.

The Proposed Project would be required to comply with the California General NPDES Permit for construction activities under **Mitigation Measure 4.8-1**. The General NPDES Permit requires that all construction sites have adequate control measures to reduce the discharge of sediment and other pollutants to streams to ensure compliance with Section 303 of the Clean Water Act. Dischargers must also comply with water quality objectives as defined in the San Francisco Bay Water Quality Control Plan. If Plan objectives are exceeded, corrective measures would be required. With compliance with the proposed mitigation, impacts to surface water, including San Vicente Creek, and groundwater quality from construction activities would be less than significant. With implementation of **Mitigation Measure 4.3-4a through 4.3-4e** in **Section 4.3 Biological Resources**, impacts due to the dredging activities at Denniston Reservoir would be less than significant. After mitigation, the project would be consistent with federal and State water quality standards, including the objectives within the federal and State antidegradation policies. Because impacts to surface water quality would be less than significant, the project would have no affect on the water quality objectives and beneficial uses described in the Basin Plan. **Less Than Significant Impact with Mitigation.**

**Mitigation Measure 4.8-1:** CCWD shall comply with the SWRCB NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Permit). The SWRCB requires that all construction sites have adequate control measures to reduce the discharge of sediment and other pollutants to streams to ensure compliance with Section 303 of the Clean Water Act. To comply with the NPDES permit, prior to construction the applicant shall file a Notice of Intent with the SWRCB and prepare a Storm Water Pollution Prevent Plan (SWPPP), which includes a detailed, site-specific listing of the potential sources of stormwater pollution; pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills); a description of the type and location of erosion and sediment control best management practices (BMPs) to be implemented at the project site; and a BMP monitoring and maintenance schedule to determine the

amount of pollutants leaving the Proposed Project site. A copy of the SWPPP must be current and remain on the project site. Control measures are required prior to, and throughout, the rainy season. Water quality BMPs identified in the SWPPP shall include, but are not limited to, the following:

- Temporary erosion control measures (such as silt fences, staked straw bales, and temporary revegetation) shall be employed for disturbed areas. No disturbed surfaces will be left without erosion control measures in place during the winter and spring months.
- Sediment shall be retained onsite by the detention basin, onsite sediment traps, or other appropriate measures.
- A spill prevention and countermeasure plan shall be developed which would identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used onsite. The plan would also require the proper storage, handling, use, and disposal of petroleum products.
- Construction activities shall be scheduled to minimize land disturbance during peak runoff periods and to the immediate area required for construction. Soil conservation practices shall be completed during the fall or late winter to reduce erosion during spring runoff. Existing vegetation will be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction.
- Surface water runoff shall be controlled by directing flowing water away from critical areas and by reducing runoff velocity. Diversion structures such as terraces, dikes, and ditches shall collect and direct runoff water around vulnerable areas to prepared drainage outlets. Surface roughening, berms, check dams, hay bales, or similar devices shall be used to reduce runoff velocity and erosion.
- Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out. Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff losses and contamination of groundwater.
- Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events.
- Establish fuel and vehicle maintenance areas away from all drainage courses and design these areas to control runoff.
- Disturbed areas shall be revegetated after completion of construction activities.
- Provide sanitary facilities for construction workers.

**IMPACT 4.8-2 The Proposed Project would change the water volume and/or pattern of seasonal flows in a manner that could result in a significant reduction in water supply**

**downstream of the diversion for senior water right holders and a significant reduction in the available aquatic habitat or riparian habitat for native species of plants or animals.<sup>1</sup>**

Construction of the infrastructure improvements under the Proposed Project will not affect flows in San Vicente and Denniston Creeks. However, the project objectives to utilize full beneficial use of water authorized under Permit 15882 will change the water volume in San Vicente and Denniston Creeks and could reduce water available for downstream flows.

The CEQA baseline conditions on San Vicente Creek include only the farmer's diversions and no diversions by CCWD. Although the District has been authorized to divert up to 2.0 cfs under Permit 15882, it has not had the infrastructure to do so in the past. Therefore, any water that is diverted under the Proposed Project will be above the CEQA baseline. **Table 4.8-6** shows the amount of water proposed to be diverted above the CEQA baseline conditions by month under each water year type for the San Vicente Preferred scenario and **Table 4.8-7** shows the amounts for the Denniston Preferred scenario.

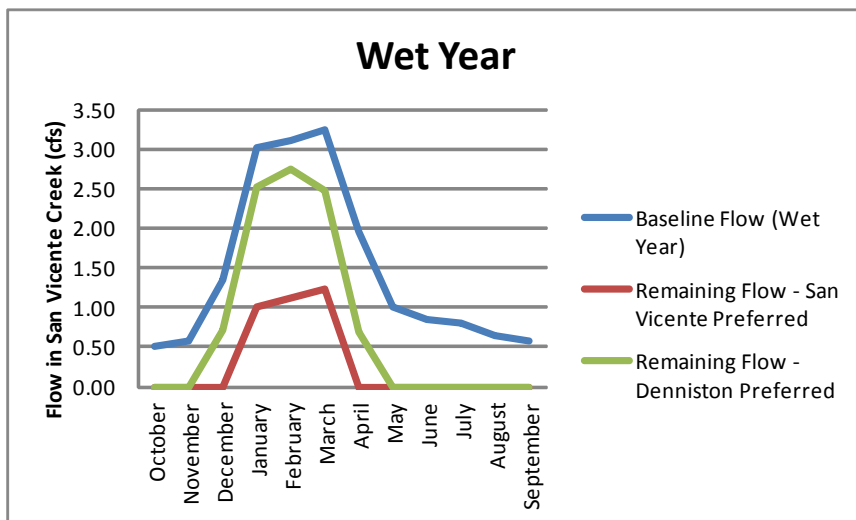
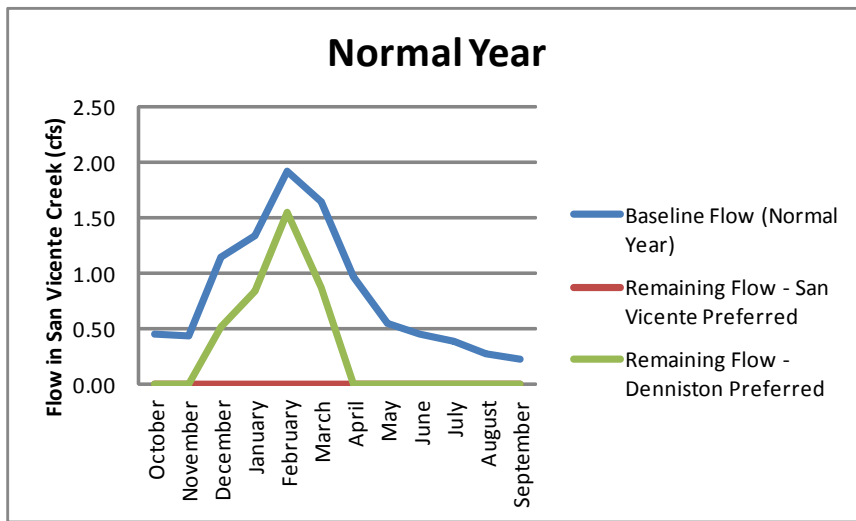
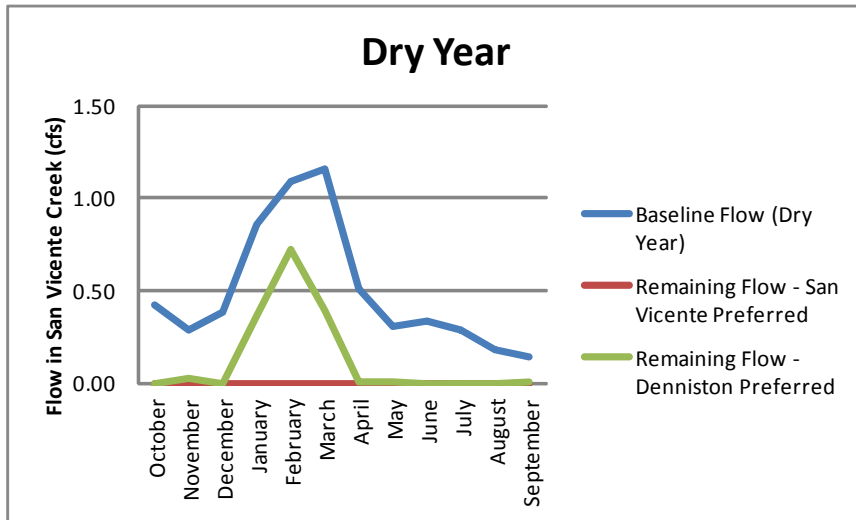
**Table 4.8-8** shows the District's diversions from San Vicente Creek above the CEQA baseline under each scenario. These diversions will result in decreased flows downstream of the POD on San Vicente Creek. Resulting flows in San Vicente Creek as a result of implementation of the Proposed Project are shown by water year type and diversion scenario in **Figure 4.8-4**. These decreases will be significant if they would result in a significant reduction in water supply for downstream, senior right holders. Through voluntary cooperative agreements between CCWD and the other water users on the stream (Cabrillo Farms and West Coast Farms), CCWD has agreed to divert water only if and when the other water right holders have sufficient water available to divert under their licenses and statements of diversion.

**TABLE 4.8-8:**  
SAN VICENTE CREEK IMPACTS: PROJECT DIVERSIONS  
ABOVE EXISTING CCWD DIVERSIONS (0.00 CFS)

	San Vicente Preference (AFY)	Denniston Preference (AFY)
Dry Year	354.0	265.0
Normal Year	584.2	358.5
Wet Year	850.0	506.2

Because of the cooperative agreements in place, the impacts to senior water diverters would be less than significant. After implementation of **Mitigation Measure 4.8-2**, impacts to hydrology

<sup>1</sup> This impact is taken from the SWRCB's custom CEQA Checklist for analyzing water right applications, found online at <http://www.waterboards.ca.gov/waterrights/>. In this EIR, impacts to aquatic habitat and riparian vegetation are discussed and analyzed in **Section 4.2 Biological Resources**.



Resulting Flows in San Vicente Creek after Implementation of the Proposed Project

and the reduction in water supplies downstream of the POD on San Vicente Creek would be less than significant.

The CEQA baseline conditions on Denniston Creek include CCWD's historical diversion and use of up to 811 AFY. This diversion is part of the CEQA baseline and will not be affected by implementation of the Proposed Project; however, any additional water that is diverted in excess of the existing CCWD diversion from Denniston Creek will be an impact of the Proposed Project. Project impacts are shown in **Table 4.8-9**.

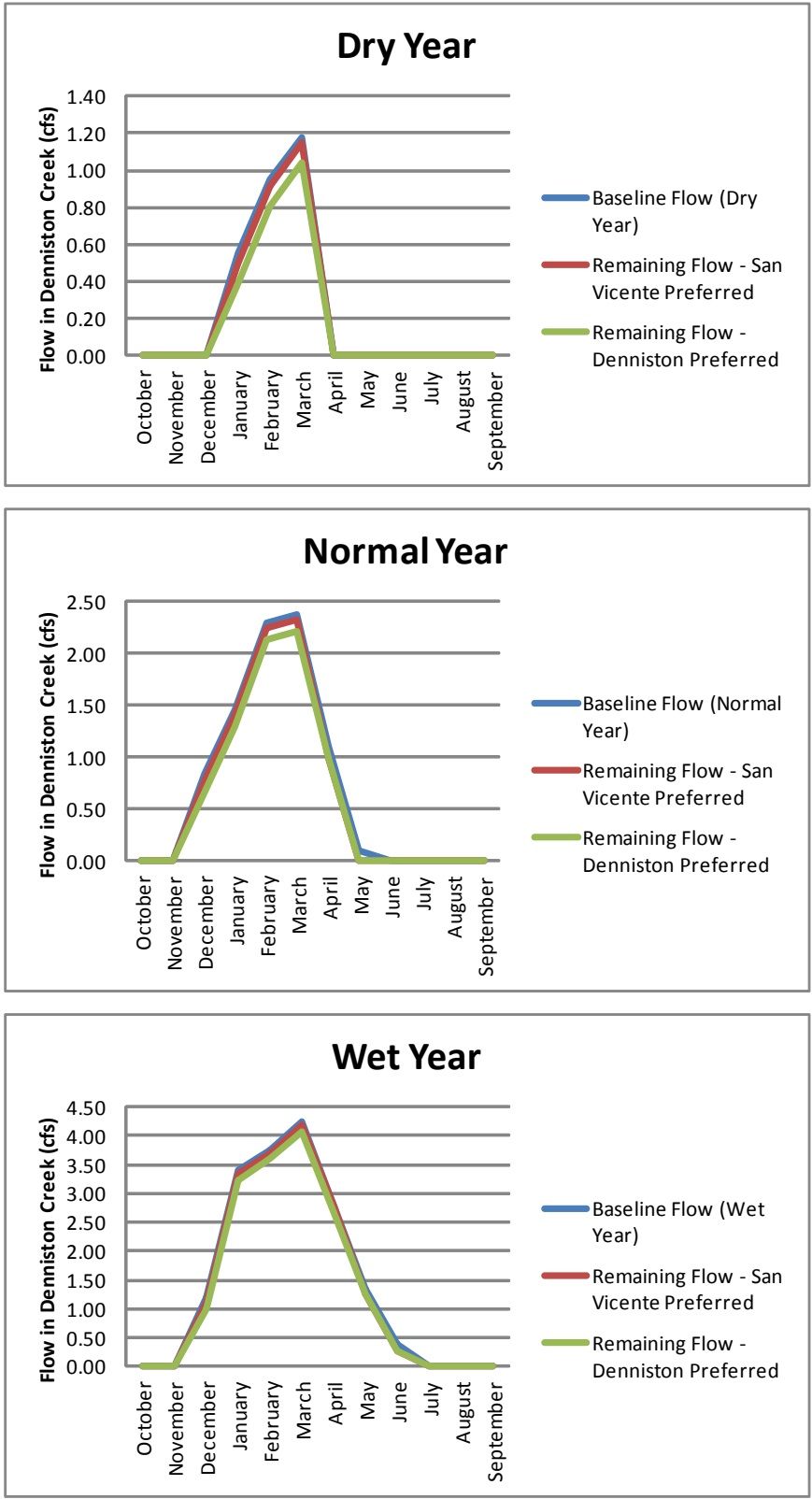
**TABLE 4.8-9:**  
DENNISTON CREEK IMPACTS: DIVERSIONS  
AS COMPARED WITH THE CEQA BASELINE (1.89 CFS)

	<b>San Vicente Preference (AFY)</b>	<b>Denniston Preference (AFY)</b>
Dry Year	134.2	219.8
Normal Year	162.3	323.1
Wet Year	265.7	475.1

Resulting flows in Denniston Creek as a result of implementation of the Proposed Project are shown by water year type and diversion scenario in **Figure 4.8-5**. As shown in the figure, the San Vicente preferred scenario has little impact to Denniston Creek above the CEQA baseline flows. The Denniston preferred scenario has very low impacts to Denniston Creek in a wet or normal year. In a dry year, there are slightly greater impacts to peak flow during the winter months. However, the diversions during the dry season proposed under this scenario indicate no change in creek flow above the baseline condition.

Through voluntary cooperative agreements between CCWD and the other water users on the stream (Cabrillo Farms and West Coast Farms), CCWD has agreed to divert water only if and when the senior water right holders have sufficient water available to divert under their licenses and statements of diversion. The project impacts to Denniston Creek would be a slight decrease in dam spillage in the winter and springs months (December through May).

Neither the San Vicente Preferred scenario nor the Denniston Preferred scenario would result in significant impacts to Denniston Creek hydrology in the downstream reaches. After implementation of **Mitigation Measure 4.8-2**, impacts to San Vicente Creek hydrology in downstream reaches would be less than significant. **Less Than Significant Impact with Mitigation.**



Resulting Flows in Denniston Creek after Implementation of the Proposed Project

**Mitigation Measure 4.8-2:** The District shall control the diversion on San Vicente Creek such that the flow bypassed during diversions from June 1 through October 1 meets the current permit term requirement of a wetted channel at the southwesterly border of Torello Ranch.

**IMPACT 4.8-3 The Proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).**

The Proposed Project, which seeks to divert water to the full extent authorized by Permit 15882, is separate from the District's continued use of local groundwater resources from within the Airport Subbasin Aquifer, which the District currently uses and will continue to use within the limits of the applicable Coastal Development Permit. However, groundwater supplies could be impacted by increased diversions of water from San Vicente Creek and Denniston Creek, which partially recharge the groundwater in the area. Although the District's use of groundwater within the limits of the Coastal Development Permit is not subject to discretionary approval under this EIR, it is discussed below to provide context for the Proposed Project.

As discussed above, San Vicente Creek is a gaining stream in its downstream reaches, which indicates there is a high water table and excess groundwater. The data suggest that reach of San Vicente Creek downstream of the POD "exchanges water readily with the underlying aquifer(s) and... infiltrates a negligible amount to the underlying aquifer." The measurement period includes two consecutive dry years in which water would have been expected to be infiltrating from San Vicente Creek into the aquifer (Balance, 2014; **Appendix H**).

Denniston Creek, from which all water that infiltrates to groundwater enters the Airport Terrace subarea, would have minimal impacts as a result of diversions under the Proposed Project (discussed in **Impact 4.8-2** above). Additionally, dredging Denniston Reservoir would increase its capacity, which in turn would allow more water to be detained and would increase recharge into the Airport Subbasin. In addition, the 180 AFY that are estimated to enter the Airport Aquifer from Denniston Creek infiltrate into the aquifer above the POD for the Proposed Project, meaning that the Proposed Project operations are unlikely to diminish the amount of groundwater availability (Balance, 2014; **Appendix H**).

During wet and normal years, the Airport Aquifer recharges quickly and completely from the first precipitation events of the winter. During dry years and multi-year droughts, precipitation is limited and surface water may become a more important source of recharge. Balance Hydrologics (2014) found that the Proposed Project cannot operate below 0.5 cfs (or



approximately 225 gpm). This operational threshold would offset the impacts of the Proposed Project during a dry year.

Development of the Proposed Project would not increase the amount of impervious surfaces on the project site which would prevent infiltration of water into the soil, potentially affecting groundwater recharge. Development of the Proposed Project would create a more reliable and safer point of diversion on San Vicente Creek, which would ensure the farmers are able to continue irrigation of their fields in the future, thereby augmenting groundwater recharge to the basin.

Under the Proposed Project, CCWD's dependency on groundwater and the overall impact on recharge to the aquifer would be maintained at approximately today's levels. Under the Proposed Project, groundwater may be used conjunctively with water pumped from Denniston and San Vicente Creeks under the diversion scenarios presented above, but would be offset by the additional storage capacity and infiltration time provided by expansion and maintenance of the reservoirs.

Implementation of the Proposed Project would not result in a new deficit in aquifer volume, would not impede groundwater recharge in the area, and would not degrade groundwater quality. **Less Than Significant Impact.**

**IMPACT 4.8.4 The Proposed Project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation; or substantially increase the rate or amount of runoff in a manner which would result in flooding on or off-site.**

Development of the Proposed Project would alter the existing drainage pattern of the project site only during construction. Alteration of the existing drainage patterns could result in an increased volume and rate of runoff to drainages; this in turn, could result in increased loading of sediment and pollutants to San Vicente and Denniston Creeks. However, construction of the diversion facilities, pump station, new booster pump station, and Bridgeport Pipeline would occur on land already developed, and the 6,100 feet of piping would be placed underground, allowing for continued infiltration of surface water into the underlying aquifer once construction is completed. Additionally, **Mitigation Measure 4.8-1** will ensure that erosion during construction will not impact local water sources. Therefore, impacts to the project site's drainage patterns are less than significant. **Less than Significant Impact.**

**IMPACT 4.8-5 Development of the Proposed Project could place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood**

**Insurance Rate Map or other flood hazard delineation map; place within a 100-year flood hazard area structures that would impede or redirect flood flows; or expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam or inundation by seiche, tsunami, or mudflow.**

The Proposed Project does not include the construction of any permanent housing. The pump station, diversion facility, and new booster pump station would be built above ground, but the 6,100 feet of piping for the San Vicente diversion and the 3,460 feet of pipeline along Bridgeport Drive would be placed underground. As shown in **Figure 4.8-2**, the northwest and southeast portions of the project site are located in an area designated that is inundated by 100-year flooding on the FEMA FIRM map. However, there are no structures proposed for development within this area. The diversion structure, pump station, and all pipelines are proposed to be built in an area that is determined to be outside the 100 and 500-year floodplains. Additionally, the areas designed for sand disposal are also within the area determined to be outside the 100- to 500-year floodplain. Finally, there are no water bodies or unstable soil types within or adjacent to the project site that could lead to inundation from by seiche, tsunami, or mudflow. **No Impact.**

### **Cumulative Impacts**

**IMPACT 4.8-6 The Proposed Project in combination with future growth and development within the County and project vicinity would not result in cumulative impacts to hydrology and water quality.**

The Proposed Project and other potential projects in the vicinity of the project site would be required to comply with the general NPDES permit of the SWRCB, which is intended to reduce the potential for cumulative impacts to water quality during construction. All of these projects that would discharge stormwater runoff would be required to comply with NPDES discharge permits from the RWQCB and would be subject to subsequent environmental review. Therefore, impacts on cumulative construction related water quality effects would be less than significant.

## 4.9 NOISE

### 4.9.1 INTRODUCTION

This section addresses the potential noise and groundborne vibration impacts associated with the implementation and operation of the Proposed Project. Following an overview of the existing setting in **Section 4.9.2** and the relevant federal, state, and local regulations in **Section 4.9.3**, project-related impacts and recommended mitigation measures are presented in **Section 4.9.4**.

### 4.9.2 ENVIRONMENTAL SETTING

#### Acoustical Background and Terminology

Noise is often described as unwanted sound. Sound is defined for the purposes of this analysis as any pressure variation in air that the human ear can detect. Pressure variations occurring frequently enough (at least 20 times per second) for the human ear to detect are called sounds. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called Hertz (Hz).

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel (dB) scale was devised. The decibel scale uses the accepted hearing threshold (20 micropascals of pressure), as a point of reference, and defines it as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in dB levels correspond closely to human perception of relative loudness (Caltrans, 2009).

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum (20 hertz to 20,000 Hz). As a result, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz to better represent the human ear's sensitivity to mid-range frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard method of frequency de-emphasis and is typically applied to community noise measurements. In practice, the level of a sound source is measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. All of the noise levels reported herein are A-weighted unless otherwise stated. **Table 4.9-1** shows commonly used noise descriptors and terms.

**TABLE 4.9-1**  
DEFINITION OF ACOUSTICAL TERMS

<b>Terms</b>	<b>Definitions</b>
Decibel (dB )	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter)
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level (dBA)	Sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network, which de-emphasizes very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level (Leq)	The average A-weighted noise level during the measurement period.
Community Noise Equivalent Level (CNEL)	The average A-weighted noise level during a 24-hour day, obtained after adding 5 decibels to measurements taken in the evening (7 to 10 pm) and 10 decibels to measurements taken between 10 pm and 7am.
Day/Night Noise Level (Ldn)	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Lmax, Lmin	The maximum and minimum A-weighted noise level during the measurement period.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Caltrans, 2009.

## Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time. **Table 4.9-2** shows examples of noise sources that correspond to various sound levels. The noise levels presented in **Table 4.9-2** are representative of measured noise at a given instant. These levels rarely persist consistently over a long period of time and community noise levels vary continuously due to the contributing sound sources of the ambient noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and atmospheric conditions. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration single event noise sources such as aircraft flyovers, moving vehicles, sirens, etc., which are typically readily identifiable to an individual. These successive additions of sound to the community noise environment vary the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to characterize a community noise environment and evaluate cumulative noise impacts.

**TABLE 4.9-2**  
TYPICAL A-WEIGHTED SOUND LEVELS

Activities	Noise Level in Decibels
Limit of Hearing	0
Normal Breathing	10
Soft Whisper	30
Library	40
Refrigerator	50
Rainfall	50
Washing Machine	50-75
Normal Conversation	60
Hair Dryer	60-95
Alarm Clock	65-80
Power Mower	65-95
Dumpster Pickup (at 50 feet)	80
Garbage Disposal	80-95
Noisy Restaurant	85
Train Approaching (Engines)	85-90
Tractor	90
Shouting in Ear	110
Loud Rock Concert	120
Stock Car Race	130
Jet Engine at Takeoff	150

Source: Caltrans, 2009

Nighttime ambient noise levels are typically lower than daytime ambient noise levels. For this reason, and because of the potential for sleep disturbance, people tend to be more sensitive to increased noise levels at night than during the day, and increases in nighttime noise have a far greater impact on the community noise environment than increases in daytime noise.

### Effects of Noise on People

The effects of noise on people can be divided into three categories:

- 1) Subjective effects of annoyance, nuisance, dissatisfaction;
- 2) Interference with activities such as speech, sleep, and learning; and
- 3) Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial

plants can experience noise in the third category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Generally, most noise is generated by transportation systems, primarily motor vehicles, aircraft, and railroads. Poor urban planning may also give rise to noise pollution, since juxtaposing industrial and residential land uses, for example, often adversely affects the residential acoustic environment. Prominent sources of indoor noise are office equipment, factory machinery, appliances, power tools, lighting hum, and audio entertainment systems. An important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment (or ambient noise) to which one has adapted. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur (Caltrans, 2009):

- Under controlled conditions in an acoustics laboratory, the trained healthy human ear is able to discern changes in sound levels of 1 dBA;
- Outside such controlled conditions, the trained ear can detect changes of 2 dBA in normal environmental noise;
- It is widely accepted that the average healthy ear, however, can barely perceive noise level changes of 3 dBA;
- A change in level of 5 dBA is a readily perceptible increase in noise level; and
- A 10-dBA change is recognized as twice as loud as the original source.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. Noise levels are measured on a logarithmic scale, instead of a linear scale. On a logarithmic scale, the sum of two noise sources of equal loudness is 3 dBA greater than the noise generated by only one of the noise sources (e.g., a noise source of 60 dBA plus another noise source of 60 dBA generate a composite noise level of 63 dBA). To apply this formula to a specific noise source, in areas where existing levels are dominated by traffic, a doubling in traffic volume will increase ambient noise levels by 3 dBA. Similarly, a doubling in heavy equipment use, such as the use of two pieces of equipment where one formerly was used, would also increase ambient noise levels by 3 dBA. A 3 dBA increase is the smallest change in noise level detectable to the average person. A change in ambient sound of 5 dBA can begin to create concern. A change in sound of 7 to 10 dBA typically elicits extreme concern and/or anger.

## Noise Attenuation

Stationary “point” sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 dBA to 7.5 dBA per doubling of distance from the source, depending upon environmental conditions (i.e., atmospheric conditions and noise barriers, either vegetative or manufactured, etc.). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles (a “line” source), would typically attenuate at a lower rate, approximately 3 to 4.5 dBA per doubling distance from the source (also dependent upon environmental conditions) (Caltrans, 2009). Noise from large construction sites (with heavy equipment moving earth and trucks entering and exiting the site daily) would have characteristics of both “point” and “line” sources, so attenuation would generally range between 4.5 and 7.5 dBA per doubling of distance.

## Vibration

The effects of groundborne vibrations typically cause only a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although groundborne vibration can be felt outdoors, it is typically an annoyance only indoors, where the associated effects of a building shaking can be notable. Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may consist of the rattling of windows or dishes on shelves.

Peak particle velocity (PPV) is often used to measure vibration. PPV is the maximum instantaneous peak (inches per second) of the vibration signal. Scientific studies have shown that human responses to vibration vary by the source of vibration, which is either continuous or transient. Continuous sources of vibration include construction, while transient sources include truck movements. Generally, the thresholds of perception and annoyance are higher for transient sources than for continuous sources. Structural damage can occur when PPV values are 0.5 inches per second or greater. Annoyance can occur at levels as low as 0.1 inches per second and become strongly perceptible at approximately 0.9 inches per second (Caltrans, 2004).

## Existing Noise and Vibration Levels and Sources

The area surrounding the project site is characterized by rural residential, agriculture, open space, and recreational facilities (equestrian and hiking). The nearest roads to the property are Highway 1 (Cabrillo Highway) and Bridgeport Drive. Traffic on these roadways is a major source of noise in the vicinity of the Proposed Project. Another major source of noise in the vicinity is the Half Moon Bay Airport located directly west of the project site across Highway 1. The noise environment at and in the immediate vicinity of the project site is also influenced by agricultural activities at the adjacent farms. Due to the relatively rural nature of the project site

and vicinity, the ambient noise level is estimated to be 45 Leq, dBA. There are no known existing sources of vibrations in the vicinity of the Proposed Project, except some moderate to light traffic on Bridgeport Drive.

### **Sensitive Noise Receptors**

Noise sensitive land uses are generally defined as land uses with the potential to be adversely affected by the presence of noise. Examples of noise sensitive land uses include residential housing, schools, health care facilities, and outdoor activity areas. The project vicinity is characterized by low-density residential and agricultural uses. The nearest sensitive noise receptor to the northern project area (San Vicente point of diversion [POD]) is a residence located approximately 380 feet west of the property. There is also a riding stable located approximately 30 feet west of the San Vicente POD and pipeline route.

Within the vicinity of the southern project site (Bridgeport Pipeline location), there are numerous residences within 30 to 40 feet of the roadway where the pipeline will be installed. The nearest public school, Farallone View Elementary School, is located in the community of Montara Beach approximately 1.1 miles northwest of the project site. There are no hospitals in the vicinity of the project site.

### **4.9.3 REGULATORY SETTING**

#### **Federal**

Federal regulations establish noise limits for medium and heavy trucks (defined as a vehicle weighing more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations, Part 205, Subpart B. The federal truck pass-by noise standard is 80 dB at 15 meters (approximately 50 feet) from the vehicle pathway centerline. Federal regulations governing truck manufacturing implement these controls.

#### **Local**

##### ***San Mateo County General Plan***

The project site is located in an unincorporated area of San Mateo County and is therefore subject to the regulations of the County. The following goals and policies are from the Noise Element contained within the San Mateo County General Plan (1986).

#### **16.12 Regulate Distribution of Land Uses**

- Regulate the distribution of land uses to attain noise compatibility. Measures may include preference toward: (1) noise sensitive land uses within quiet areas, removed from Noise Impact Areas, and (2) noise generating land uses separate from noise



sensitive land uses. Guidelines for land use and noise exposure compatibility are shown in **Table 4.9-3**, below.

**TABLE 4.9-3**  
EXTERIOR NOISE LEVEL STANDARDS  
(LEVELS NOT TO BE EXCEEDED MORE THAN 30 MINUTES IN ANY HOUR)

Land Use	Noise Level (dBA) by CNEL			
	Normally Acceptable <sup>a</sup>	Conditionally Acceptable <sup>b</sup>	Normally Unacceptable <sup>c</sup>	Clearly Unacceptable <sup>d</sup>
Single-Family, Duplex, Mobile Homes	50-60	55-70	70-75	Above 75
Multi-Family Homes	50-65	60-70	70-75	Above 75
Schools, Libraries, Churches, Hospitals, Nursing Homes	50-70	60-70	70-80	Above 80
Transient Lodging – Motels, Hotels	50-65	60-70	70-80	Above 75
Auditoriums, Concert Halls, Amphitheaters	-	50-70	-	Above 70
Sports Arena, Outdoor Spectator Sports	-	50-75	-	Above 75
Playgrounds, Neighborhood Parks	50-70	-	67-75	Above 75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50-75	-	70-80	Above 90
Office Buildings, Business and Professional Commercial	50-70	67-77	Above 75	-
Industrial, Manufacturing, Utilities, Agriculture	50-75	70-80	Above 75	-
Industrial and Wineries	75			

<sup>a</sup> *Normally Acceptable*: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

<sup>b</sup> *Conditionally Acceptable*: New construction or development should be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

<sup>c</sup> *Normally Unacceptable*: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

<sup>d</sup> *Clearly unacceptable*: New construction nor development should generally not be undertaken.

Source: Caltrans, 2009

#### 16.12 Regulate Noise Levels

- Regulate noise levels emanating from noise generating land uses through measures which establish maximum land use compatibility and nuisance thresholds.

#### 16.14 Noise Barriers Noise Control

- Promote measures which incorporate use of noise barriers into the design of new development, particularly within Noise Impact Areas. Noise barriers may include earth berms, walls, fencing, or landscaping.

#### 4.16 Promote Transportation Related Noise Reduction

- Promote measures which reduce transportation related noise, particularly aircraft and vehicle noise, to enhance the quality of life within San Mateo County.

#### ***San Mateo County Code of Ordinance***

The following goals and policies for regulation of unnecessary and excessive noise within the County of San Mateo are contained within the San Mateo County Code of Ordinance.

#### ***Exterior Noise Standards (Section 4.88.330)***

It is unlawful for any person at any location within the unincorporated area of the County to create any noise, or to allow the creation of any noise on the property owned, leased, occupied, or otherwise controlled by such persons which causes the exterior noise level when measured at any single or multiple family residence, school, hospital, church, public library, situated in either the incorporated or unincorporated area to exceed the noise level standards (Table 4.9-4).

**TABLE 4.9-4**  
NOISE LEVEL STANDARDS (DBA) FOR SINGLE OR MULTIPLE FAMILY RESIDENCE,  
SCHOOL, HOSPITAL, CHURCH, OR PUBLIC LIBRARY PROPERTIES

Category	Cumulative Numbers of Minutes in a one hour time period	Daytime 7 A.M. – 10 P.M.	Nighttime 10 P.M. – 7 A.M.
1	30	55	50
2	15	60	55
3	5	65	60
4	1	70	65
5	0	75	70

Source: San Mateo County, 2009a

#### ***Exemptions (Section 4.88.360)***

The following activities are exempt from Chapter 4.88 of the San Mateo County Ordinance Code:

- Noise sources associated with demolition, construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 6:00 P.M. and 7:00 A.M. weekdays, 5:00 P.M. and 9:00 A.M. on Saturdays or at any time on Sundays, Thanksgiving, and Christmas.

#### 4.9.4 IMPACT ANALYSIS

##### Methodology

Noise from construction activities were estimated using Caltrans Guidelines. Project-related construction noise level was compared to the County's Construction Ordinance provided **Section 4.9.3** to determine if noise impact due to construction of the Proposed Project are significant.

Increases in the ambient noise level due to stationary sources, such as noise generated by the proposed pump at the diversion on San Vicente Creek, were estimated using known noise levels and comparing those noise levels to the applicable County significance thresholds.

Vibration noise levels for construction and operation of the Proposed Project were determined using Caltrans guidelines (Caltrans, 2004). Those vibration noise levels were then compared to significance thresholds.

##### Thresholds of Significance

The following criteria are established by CEQA Guidelines and have been used in this section to evaluate potential environmental impacts of the Proposed Project on sensitive noise receptors. Such an impact is considered significant if it would:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Expose persons to or generate excessive groundborne vibration noise levels;
- Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- For a project located within an airport land use plan or, where such a plan has not been adopted within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels; or
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

## Impacts and Mitigation Measures

### Construction Impacts

**IMPACT 4.9-1. Construction activities associated with Proposed Project have the potential to intermittently and temporarily generate noise levels significantly greater than existing ambient levels in the Proposed Project vicinity.**

Construction of the San Vicente POD and installation of the water pipeline would involve heavy equipment usage such as backhoes, compaction equipment, trenchers, delivery trucks, and dump trucks. Activities associated with construction would be intermittent and temporary and add to the existing noise environment and therefore, would have the potential to raise the ambient noise levels in the vicinity of sensitive receptors. **Table 4.9-5** shows typical noise level for common construction equipment.

**TABLE 4.9-5**  
TYPICAL MAXIMUM NOISE FROM CONSTRUCTION EQUIPMENT

Equipment Description	Predicted Lmax at 50 ft (dBA, Lmax)
Backhoe	80
Concrete Mixer Truck	85
Concrete Pump Truck	82
Dozer	85
Dump Truck	84
Flat Bed Truck	84
Front End Loader	80
All Other Equipment > 5 HP	85

Source: Caltrans, 2009

In the northern section of the project site, the nearest sensitive receptors are 380 feet west (residence) and 30 feet west (equestrian facility) of where construction activities would occur. As indicated in **Table 4.9-5**, the noisiest activities associated with construction would average 85 dBA, Leq at 50 feet from the construction equipment. This would result in sound levels of approximately 67 dBA, Leq at the nearest residential receptor and 89 dBA, Leq at the equestrian facility, which are greater than the County's residential noise threshold of 55 Leq, dBA. This is considered a potentially significant short-term impact.

In the southern portion of the project site (along Bridgeport Drive), there are numerous sensitive receptors less than 50 feet from where construction would occur. This is a potentially significant short-term impact. Construction of the Bridgeport Pipeline would take approximately one week; within that week, the active construction area will move down the length of the road, so that no one sensitive receptor is fully impacted for the entire duration of construction.

County Ordinance Section 4.88.360 exempts construction noise if construction activities do not occur between 6:00 pm. and 7:00 am weekdays, 5:00 pm and 9:00 am on Saturdays or at any time on Sundays, Thanksgiving, and Christmas. Best management practices (BMPs) are identified below and would be implemented to further reduce construction-related noise. Therefore, with implementation of **Mitigation Measure 4.9.1**, noise impacts due to construction of the Proposed Project are **Less than Significant with Mitigation**.

**Mitigation Measure 4.9-1:** Construction activities shall be limited to the hours of 7:00 am to 6:00 pm Monday through Friday and 9:00 am to 5:00 pm Saturday. Construction activities shall not be conducted on Sundays or holidays.

In addition, the contractor shall implement the following BMPs to further reduce noise impact due to construction:

- Stationary equipment and staging areas shall be located as far as practical from noise-sensitive receptors.
- All construction vehicles or equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and acoustical shields or shrouds, in accordance with manufacturers' recommendations.
- To the extent feasible, existing barrier features (structures) shall be used to block sound transmission between noise sources and noise sensitive land uses.
- The general contractors for all construction and demolition activities shall provide a contact number for citizen complaints and a methodology for dealing with such complaints such as designating a noise disturbance coordinator. This noise disturbance coordinator shall receive all public complaints about construction-related noise and vibration, shall be responsible for determining the cause of the complaint, and shall implement any feasible measures to be taken to alleviate the problem. All complaints and resolution of complaints shall be reported to the County weekly.

**IMPACT 4.9-2. Construction activities associated with the Proposed Project have the potential to intermittently and temporarily generate vibrations.**

Construction activities associated with the Proposed Project, such as trenching, compacting, and heavy truck movements, may produce detectable levels of vibration at nearby sensitive land uses. Ground vibrations due to construction activities very rarely reach the levels that can damage structures, but they can reach levels perceptible in buildings close to the site of construction activities.

The California Transportation Department (Caltrans) has published vibration levels caused by representative construction equipment (**Table 4.9-6**). Based upon these values, vibration due to the operation of equipment such as heavy trucks and bulldozers associated with the project could be perceived by residents in homes located within about 25 feet of the construction site. Structural damage due to construction-related vibration is unlikely outside 25 feet from the construction site.

**TABLE 4.9-6**  
VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	Peak Particle Velocity at 25 feet (inches/second)
Large bulldozer	0.089
Caisson drilling	0.089
Loaded trucks	0.076
Jackhammer	0.035
Small bulldozer	0.003

<sup>1</sup>  $PPV_{predicted} = PPV_{ref} * (D_{ref}/D_{source})^{1.4}$ .

Source: Caltrans, 2004

The use of heavy equipment that would produce the highest vibration levels would be intermittent, and would be limited to daytime hours. The nearest vibration receptors at the northern San Vicente POD project site are a residence 380 feet from the site of construction and an equestrian facility 30 feet from the construction site. Along the Bridgeport Pipeline site, the nearest vibration receptors are 30 to 40 feet from the construction site. At both project sites, vibration from construction activities would not exceed 0.1 inches per second PPV (the annoyance level for vibration as discussed in **Section 4.9.2**) at the nearest sensitive receptors; therefore, impacts are **Less than Significant**.

### ***Operational Impacts***

#### **IMPACT 4.9-3. Operation of the Proposed Project has the potential to generate noise levels above existing ambient levels in the Proposed Project vicinity.**

The proposed Booster Pump Station would consist of three electric pumps located adjacent to the existing Denniston pump station. The Booster Pump Station is located 0.34 miles away from the nearest sensitive receptor (a residence at the end of Bridgeport Drive) and would not be audible at that distance. Operation of this project component will have a less-than-significant impact to sensitive noise receptors.

The ongoing dredging that would occur from Denniston Reservoir and the disposal in the two

dredge material disposal areas would produce noise. The reservoir is located 0.34 miles away from the nearest sensitive receptor, and any heavy equipment used for dredging would not be audible at that distance. The dredge disposal areas are located up the canyon, approximately 0.85 miles northeast of the nearest residence located at the end of Bridgeport Drive. At this distance, the equipment used for the disposal of dredge materials would not be audible. This is a less-than-significant impact.

The pump station at the San Vicente POD would consist of one electric pump located near the new permanent diversion structure (refer to **Figure 3-3**). The pump would be located approximately 380 feet from the nearest residence and 30 feet from the equestrian facility; however, the pump would be adjacent to the open space east of the new permanent diversion. The remote placement of the San Vicente pump and the seasonality of operation would greatly reduce pump noise at the nearest sensitive noise receptors; therefore noise from the pump would present only minimal noise impacts affecting wildlife and visitors to the adjacent open space. Implementation of **Mitigation Measure 4.9-2** would further reduce noise from the pump to below the County's noise threshold of 55 CNEL, dBA. Impacts associated with noise from the pump are **Less than Significant with Mitigation**.

**Mitigation Measure 4.9-2:** Noise generated by the electric pump located at the new San Vicente POD shall be equipped with a noise-reducing shielding, so that noise generated by the pump does not to exceed the County's noise threshold of 55 CNEL, dbA at a distance of 50 feet.

# **SECTION 5.0**

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CEQA REQUIRED SECTIONS



## 5.0 CEQA-REQUIRED SECTIONS

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California Environmental Quality Act (CEQA)-required discussions are included in this section, including the following:

- Indirect and Growth-Inducing Impacts of the Proposed Project;
- Cumulative Impacts of the Proposed Project;
- Significant and Unavoidable Impacts of the Proposed Project (i.e., residually significant impacts); and
- Irreversible Changes.

### 5.1 INDIRECT AND GROWTH-INDUCING IMPACTS

CEQA *Guidelines* Section 15126.2 [d] requires that an Environmental Impact Report (EIR) evaluate the growth-inducing impacts of a proposed project. A growth-inducing impact is defined by the CEQA *Guidelines* as an impact that fosters economic or population growth, or the construction of additional housing, either directly or indirectly. Direct growth inducement would result, for example, if a project involved the construction of new housing. Indirect growth inducement would result if a project established substantial new permanent employment opportunities (e.g., new commercial, industrial, or governmental enterprises) or if it would remove obstacles to population growth (e.g., expansion of a waste water treatment plant that could allow more construction in the service area).

Growth inducement may constitute an adverse impact if the growth is not consistent with or accommodated by the land use plans and growth management plans and policies for the area affected. Local land use plans provide development patterns and growth policies that guide orderly urban development supported by adequate urban public services, such as water supply, roadway infrastructure, sewer services, and solid waste services. A project that would induce “disorderly” growth (i.e., conflict with the local land use plans) could directly or indirectly cause additional adverse environmental impacts and other public services impacts. An example of this would be the re-designation of property planned for agricultural uses to urban uses, possibly resulting in the development of services and facilities that encourage the transition of additional land in the vicinity to more intense urban uses. Another example would be the extension of urban services to a non-urban site, thereby encouraging conversion of non-urban lands to urban lands.

### 5.1.1 GROWTH INDUCEMENT POTENTIAL OF PROPOSED PROJECT

Growth can be induced in several ways, such as eliminating obstacles to growth and stimulating economic activity within the region. Based on the significance thresholds contained in CEQA *Guidelines*, a project is considered to be directly or indirectly growth-inducing if it:

- Fosters economic or population growth or additional housing;
- Removes obstacles to growth (e.g., through development of physical infrastructure, roadways, and utilities); or
- Taxes community services or facilities to such an extent that new services or facilities would be necessary.

The following discussion examines whether the Proposed Project would induce growth beyond that envisioned in the General Plans and Local Coastal Programs (LCP) of San Mateo County (County) and the City of Half Moon Bay (City), the documents which govern this area today.

The California Coastal Act of 1977 established the California Coastal Zone to preserve and protect coastal resources. In San Mateo County, the Coastal Zone stretches for approximately 55 miles along the coast from San Francisco County to Santa Cruz County. It includes approximately 88,000 acres of land area. The Coastal Act required the County and the City to prepare LCP's to guide existing and future development within the Coastal Zone. The LCP is a planning tool used by local governments in order to 1) protect and expand public access to the ocean and recreational activities; 2) protect, enhance, and restore environmentally sensitive habitat; 3) protect agricultural lands and commercial fisheries; and 4) limit new housing and development in order to avoid urban sprawl. The County LCP was first adopted in 1980, with the latest revisions adopted in 2012. The City's LCP was adopted in 1981 and amended in 1993.

The Proposed Project would not be growth inducing because the County and the City impose strict limits on growth through their LCP's and the City's Measure D growth limitation initiative. The County LCP allows 40 new residential units per year in the coastal unincorporated area served partially by the District and partially by Montara Water and Sanitary District (MWSD). The City's Measure D restricts new residential development to keep the annual increase in the City's population below 1 percent.

In addition to these County and City growth restrictions, Special Conditions 4.A and 4.B of the District's 2003 El Granada Pipeline Coastal Development Permit (CDP) (CDP A-2-SMC-99-063) limit the District to serving only those connections allowed by the 1984 CDP for the Crystal Springs Phase 1 project. Completion of the Proposed Project would not affect these conditions and would therefore not remove any impediment to growth or allow development beyond that already permitted.

Land uses under the General Plan immediately surrounding the project site consist of agricultural and public recreational, as well as medium-density residential surrounding the Bridgeport Pipeline project site (San Mateo County, 1986). The Proposed Project would not induce growth by changing the land use designation of the property, nor would it result in impacts to the surrounding agricultural land uses. Most of the undeveloped land surrounding the project site is part of the National Park Service's (NPS) Golden Gate National Recreation Area (GGNRA) or is agricultural land subject to a conservation easement and is therefore permanently protected from development.

The project site is located in an area with existing public utilities and services (i.e., electricity, police, and fire protection), and would not result in the need for increased levels of public service. Public utilities and services to the project site and area are currently provided by Pacific Gas and Electric (PG&E), the County of San Mateo Sheriff's Department, and the Coastside Fire Protection District. The Proposed Project would not appreciably modify CCWD's distribution system. Instead, the Proposed Project would allow for a greater reliance on local supplies and on surface water rather than groundwater or imported water. The Bridgeport Pipeline and proposed Booster Pump Station would not increase the capacity of the system but would facilitate integration of the local supplies into the existing distribution system.

Thus, although the Proposed Project would enable the CCWD to provide more reliable local water service to its customers, it would not result in additional development of residential and/or commercial properties not already fully accounted for in the City and County LCP and General Plan, nor would it result in permanent degradation of the rural character of the vicinity. As discussed in **Sections 4.3** and **4.8**, the Proposed Project would not impact sensitive resources such as the coastline or the marsh areas. For these reasons, the Proposed Project would not result in any of the following repercussions: 1) remove (or create) obstacles to growth; 2) cause a strain on existing community services provided in the region; 3) impede economic growth; or 4) cause a need for additional housing. Therefore, no indirect or growth inducing impacts would occur as a result of the Proposed Project.

## 5.2 CUMULATIVE IMPACT ANALYSIS

Cumulative impacts refer to the effects of two or more projects that, when combined, are considerable or compound other environmental effects. A cumulative impacts analysis must consider the combined impacts of past, present, and reasonably foreseeable future projects. When assessing a cumulative impact, an EIR must identify if the project makes a "cumulatively considerable" contribution to any cumulative impacts. A project's contribution may be cumulatively considerable even if the project's individual impact is considered less than significant. CEQA *Guidelines* Section 15130(b) requires that the EIR's discussion of cumulative

impacts reflect the severity of the impacts and their likelihood of occurrence. The CEQA *Guidelines* state that the cumulative impacts discussion does not need to provide as much detail as is provided in the analysis of project-only impacts and should be guided by the standards of practicality and reasonableness. Pursuant to CEQA *Guidelines* Section 15130(b), this Draft EIR uses projections contained in the San Mateo County General Plan (1986), the County LCP and related planning documents, the City's LCP, the City's General Plan, and in prior environmental documents that have been adopted or certified, which described or evaluated regional or area-wide conditions contributing to cumulative impacts.

### 5.2.1 CUMULATIVE CONTEXT

CEQA requires that the cumulative analysis define the geographic scope of the area affected by the cumulative effect and provide a reasonable explanation for geographic limitations. For the purposes of this EIR, the cumulative setting is defined primarily as the CCWD's 14 square-mile service area, including the Airport Aquifer and the adjacent MWSD, with consideration of the broader development trends impacting the greater San Mateo County coastal region. As discussed in **Section 4.8**, the Proposed Project would not affect the Airport Aquifer, which is shared by the CCWD and the MWSD, and would not modify the current division of water in this aquifer between the two districts. Therefore, the Proposed Project would not result in cumulative effects to either water district. The cumulative analysis is based on the long-term development levels projected in the General Plan, the LCP, as well as reasonably foreseeable potential development projects in the vicinity of the project site. Reasonably foreseeable development projects considered within this EIR, including brief descriptions of each, consist of the following:

- **Big Wave Wellness Center and Office Park Project** – This project would involve construction of community development that provides housing and employment opportunities for low-income developmentally disabled (DD) adults at the Wellness Center, as well as an Office Park that would be occupied by private firms with their own workers (not necessarily DD adults) located on Airport Street, northwest of the Princeton/Pillar Point Harbor area in unincorporated County of San Mateo (San Mateo County, 2009b). The Draft and Final EIR for this project was certified in a Letter of Decision released by the San Mateo County Board of Supervisors on April 1, 2011.
- **Pilarcitos Quarry Expansion Project** – This project involves the long-term expansion of the Pilarcitos Quarry, located in unincorporated San Mateo County, east of the City of Half Moon Bay along State Route 92. The Final EIR was released in December 2011 (San Mateo County, 2011) and was certified on January 9, 2013. Any indirect growth or cumulative effect from this project would have to be consistent with the LCP and would already be part of the limited number of hook ups that are already approved for the

CCWD under the LCP and would not be impacted by this shift in source of water for the District.

- **Denniston Project** – This project is located at the existing Denniston Water Treatment Plant (WTP), just north and adjacent to the Proposed Project. It involves the retrofit of the current WTP to enable the processing of poorer quality water garnered from Denniston Creek via Denniston Reservoir. This project has already been completed.

### 5.2.2 CUMULATIVELY CONSIDERABLE IMPACTS

CEQA *Guidelines* Section 15130(a) provides the following direction with respect to the cumulative impact analysis and the determination of significant effects:

1. A cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts.
2. When the combined cumulative impact associated with the project's incremental effect is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed further.
3. An EIR may determine that a project's contribution to a significant cumulative effect will be rendered less than cumulative considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

The following is a list of cumulative impacts related to the Proposed Project by environmental topic as described in **Section 4.0**. Refer to **Section 4.0** for a detailed discussion of the nature and scope of impacts associated with the Proposed Project.

#### **Aesthetics and Visual Resources**

As discussed in **Section 4.1**, Aesthetics and Visual Resources, the Proposed Project would not result in significant impacts to the aesthetic quality of the project site and surrounding properties. Any disturbance of vegetation resulting from construction of the project shall be mitigated for (refer to **Section 4.3**, Biological Resources for more information on vegetation replacement measures). The proposed diversion structure and pipeline would be screened from view by riparian vegetation, and no other new surfaces are proposed. There would be no cumulatively considerable impacts to aesthetics and visual resources as a result of the Proposed Project and other projects in the vicinity.

## Air Quality

As discussed in **Section 4.2**, Air Quality, the Proposed Project would not contribute significant air pollution to the project site or the project vicinity. The temporary increase of air pollutants during construction is negligible, even when considered in combination with development surrounding the project site. Additionally, the measures outlined in **Section 4.2**, Air Quality would offset any temporary impacts to air quality in the vicinity of the project site. Because the Proposed Project would not have an independently significant effect on air quality in the region, the Bay Area Air Quality Management District (BAAQMD) requires that a determination of cumulative impacts be based on an evaluation of the consistency of the Proposed Project with the local general plan and of the general plan with the regional air quality management district (AQMD). If a project is proposed in a city or county with a general plan that is consistent with the AQMD, and the project is consistent with that general plan, the project would not have a significant cumulative impact.

## Biological Resources

The cumulatively considerable effects on biological resources of developments in the project vicinity are dependent on the degree to which significant vegetation and wildlife resources are protected or mitigated as part of individual developments. Environmental review of specific development projects in the vicinity of the Proposed Project would generally ensure the identification and protection of important biological and wetland resources. However, if an individual project cannot fully mitigate or offset significant impacts associated with biological resources, significant cumulative impacts on biological and wetland resources could also result. The Proposed Project, in combination with cumulative developments surrounding the project site, could significantly impact biological resources in the region, including vegetation communities, special-status species, and downstream resources in Denniston and San Vicente Creeks.

The project site provides potential habitat for one special status plant species, eight special status wildlife species, and migratory bird species and other birds of prey. These species could potentially be impacted by the Proposed Project. In accordance with Section 7 of the FESA, a Biological Assessment will be prepared and submitted to the USFWS and NMFS to initiate FESA consultation for impacts to federally listed species due to likelihood for the need to obtain a 404 permit from the USACE. Additionally, measures proposed in **Section 4.3**, Biological Resources, would ensure project-related impacts are appropriately minimized, avoided, and/or mitigated. With the implementation of appropriate measures to avoid, minimize, and/or mitigate potential impacts to biological resources, these impacts would be less than cumulatively considerable.

## Cultural Resources

The Proposed Project, in combination with cumulative development surrounding the project site, would not significantly impact cultural resources in the region. No cultural, historical, or paleontological resources would be affected by the Proposed Project. In the event previously unidentified cultural resources are discovered in the course of construction of the Proposed Project, measures outlined in **Section 4.4**, Cultural Resources, would ensure no significant impacts would result. The extent of possible cultural resources that may occur at the sites of the other projects in the vicinity of the Proposed Project is unknown, and thus, it is not known whether any of these projects would result in significant impacts to cultural resources in the greater area. However, impact determinations would be made on a case-by-case basis for each project and implementation of appropriate mitigation measures would be the responsibility of the project proponents. In the event the other project's cultural resources impacts would be completely mitigated, the Proposed Project's impacts to cultural resources would be less than cumulatively considerable.

## Geology and Soils

Construction of other projects in the vicinity is not anticipated to combine with the Proposed Project to cumulatively expose people, property, or infrastructure to such geologic hazards as earthquakes, ground shaking, liquefaction, landslides, unstable soils, expansion soils, and/or result in substantial soil erosion or the loss of topsoil. In general, geotechnical hazards are site-specific, resulting in little, if any, cumulative relationship between development of the Proposed Project and other projects in the vicinity. Therefore, the impacts resulting from each project site in the vicinity of the Proposed Project would be specific to that site and would not be common or contribute to impacts on other sites. In addition, development on each site would be subject to uniform site development and construction standards as dictated in the CEQA *Guidelines*, the San Mateo County General Plan, and the LCP that are designed to protect public safety. Impacts related to geology and soils resulting from the Proposed Project as described in **Section 4.5**, Geology and Soils, combined with other projects in the vicinity, would be less than cumulatively considerable.

## Greenhouse Gas Emissions

As discussed above, cumulative air quality issues in the San Francisco Bay Area Air Basin (SFBAAB) are addressed through regional air quality control plans developed by the BAAQMD. These plans account for projected growth in the Bay Area, as embodied in the adopted General Plans of the various cities and counties that comprise the Bay Area. There is, therefore, no need to identify each and every specific "probable future project" that might contribute emissions within the air basin.

### **Construction**

As discussed in **Section 4.6**, Greenhouse Gas Emissions, construction emissions are estimated at 141 metric tonnes (MT) of carbon dioxide equivalent (CO<sub>2</sub>e). With the implementation of **Mitigation Measures 4.6-1a** and **4.6-1b**, greenhouse gas (GHG) emissions would be reduced by greater than 26 percent, resulting in project-related construction GHG emissions of 103 MT. Therefore, construction of the Proposed Project would not result in cumulative impacts to greenhouse gas emissions.

### **Operation**

Operational emissions associated with the maintenance and operation of the Proposed Project were estimated at just 3 MT per year, which is far less than the BAAQMD operational threshold of 1,100 MT per year. This amount would not contribute significantly to the cumulative regional CO<sub>2</sub>e emissions and impacts associated with greenhouse gas emissions.

### **Hazardous Materials**

Each of the other projects in the vicinity would require thorough analysis of potential threats to public safety, including those associated with transport/use/disposal of hazardous materials, accidental release of hazardous materials into the environment, hazards to sensitive receptors, listed hazardous material sites, aircraft-related hazards, emergency response, and wildland fire-related hazards. Because evaluations of hazardous materials are largely site-specific, they would occur on a case-by-case basis for each individual project. Additionally, each specific project would be required to implement appropriate avoidance, minimization, and/or mitigation measures to reduce potential impacts as a result of hazardous materials. The Proposed Project, as discussed in **Section 4.7**, Hazardous Materials, would adhere to the avoidance and minimization measures proposed and would therefore not result in significant impacts to the environment. Impacts related to hazardous materials would be less than cumulatively considerable.

### **Hydrology and Water Quality**

The Proposed Project, in combination with cumulative developments surrounding the project site, could significantly impact hydrology and water quality in the project vicinity. Mitigation measures outlined in **Section 4.8** would reduce impacts to hydrology and water quality at the project site, as well as downstream in the two creeks associated with the Proposed Project. The cumulative impacts associated with the Proposed Project's incremental effects are not significant in the cumulative environment because new applications to appropriate surface water in the watershed would be subject to CEQA review by the State Water Resources Control Board (SWRCB), and would only be granted if cumulative hydrologic impacts were less than cumulatively considerable.



As discussed in **Section 4.8**, the Proposed Project will not result in the direct pumping of groundwater and will not increase any groundwater pumping above the baseline. Recent data taken from San Vicente and Denniston Creeks show that the Airport Aquifer refills quickly and completely following the first rain events of the season, which will not be affected by the Proposed Project (Balance, 2014; **Appendix H**). San Vicente Creek is a gaining stream downstream of the project site, and does not contribute significant groundwater to the aquifer, while Denniston Creek contributes approximately 180 acre-feet (AF) per year to the aquifer, almost all of which infiltrates above the Denniston Dam and would be unaffected by the Proposed Project. Furthermore, the protection and enhancement of the diversion structures and reservoirs used by the farmer to divert for irrigation will allow increased infiltration of diverted water back into the aquifer via the unlined reservoirs. Implementation of the Proposed Project would not result in a new deficit in aquifer volume, would not impede groundwater recharge in the area, and would not degrade groundwater quality. Therefore, the Proposed Project's incremental impact to groundwater in the cumulative environment would be less than significant.

Additionally, other projects in the vicinity of the Proposed Project would also be subject to local, State and federal regulations regulating water quality and flood control. By complying with those regulations, through incorporation of best management practices (BMPs) to prevent increases in peak flows and treat post-construction runoff, cumulative hydrologic and water quality impacts would be less than cumulatively considerable.

## Noise

Due to the fact noise is a relatively localized phenomenon, and reduces in magnitude the greater the distance between it and noise receptors, only projects in the near vicinity to the Proposed Project could be considered in a cumulative analysis of noise. The Proposed Project would not result in significant increases in ambient noise levels, nor would it introduce sensitive receptor to areas of increased noise levels. The nearest known development project to the Proposed Project is located across U.S. Highway 1, a major thoroughfare in the vicinity. The noise from the existing traffic is significantly greater than noise that would be generated by the Proposed Project; therefore, there would no basis for cumulative consideration of noise impacts in relation to other projects in the vicinity. Impacts due to noise generation by the Proposed Project would be less than cumulatively considerable.

## 5.3 SIGNIFICANT AND UNAVOIDABLE IMPACTS

Any project-related and cumulative impacts that were identified as potentially significant have been reduced to a less-than-significant level by mitigation measures. Therefore, no significant

and unavoidable impacts would result from implementation of the Proposed Project if all recommended mitigation measures are adopted.

## 5.4 IRREVERSIBLE CHANGES

State CEQA *Guidelines* Section 15126.2(c) provides the following direction for the discussion of irreversible changes:

*Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.*

The Proposed Project would result in an irreversible commitment of water resources, fossil fuels for construction equipment (e.g., fuel, oil, natural gas, and gasoline), and the consumption or destruction of other nonrenewable or slowly renewable resources (e.g., gravel, metals, and water).

The significance of the Proposed Project's environmental impacts is characterized in **Sections 4.1 through 4.9**, including both reversible and irreversible impacts. In general, implementation of the Proposed Project would not result in the conversion of land use nor change the existing character of the project site or vicinity. Approval of the petition for extension of time would lead to the construction of the project components listed in **Section 3.2**. Construction of the new diversion facility and pipeline would involve the utilization of building materials and energy, some of which are nonrenewable. Impacts to San Vicente and Denniston Creeks are offset through the mitigation measures outlined in **Section 4.3**, Biological Resources and **Section 4.8**, Hydrology and Water Quality.

# **SECTION 6.0**

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ALTERNATIVES

## 6.0 ALTERNATIVES

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### 6.1 INTRODUCTION

This section reviews the alternatives to the Proposed Project that were considered during the preparation of this Draft Environmental Impact Report (EIR). The purpose of the alternative analysis, according to CEQA *Guidelines* Section 15126.6(a), is to describe a range of reasonable alternative projects that could feasibly attain most of the objectives of the Proposed Project and to evaluate the comparative merits of the alternatives. CEQA *Guidelines* Section 15126.6(b) requires consideration of alternatives that could reduce impacts to less-than-significant levels or eliminate any significant adverse environmental effects of the Proposed Project, including alternatives that may be more costly or could otherwise impede the Proposed Project's objectives. The range of alternatives evaluated in an EIR is governed by a "rule of reason," which requires the evaluation of alternatives "necessary to permit a reasoned choice." Alternatives considered must include those that offer substantial environmental advantages over the Proposed Project and may be feasibly accomplished in a successful manner considering economic, environmental, social, technological, and legal factors.

In accordance with the CEQA *Guidelines*, the alternatives considered in this Draft EIR include those that: 1) could accomplish most of the basic objectives of the project, and 2) could avoid or substantially lessen one or more of the significant effects of the project. To provide the appropriate context for this alternatives analysis, the project objectives and key significant effects are summarized below in **Section 6.2**. Alternatives initially considered but eliminated from further consideration due to their inability to achieve the project objectives and/or to reduce environmental impacts associated with the Proposed Project are described in **Section 6.3**. Alternatives determined to achieve the selection criteria are discussed in **Section 6.4**. This discussion evaluates the capacity of selected project alternatives to accomplish the basic objectives of the project and provides a comparison of the potential environmental impacts expected to occur for each issue area. These comparisons are used in **Section 6.5** to determine the Environmentally Superior Alternative.

### 6.2 OVERVIEW OF THE PROPOSED PROJECT

#### 6.2.1 PROJECT OBJECTIVES

CCWD has identified the following objectives for the Proposed Project:

- Obtain an extension of time to complete infrastructure improvements and divert water for beneficial use under Water Right Permit 15882;
- Improve the overall reliability of the CCWD water supply system;

- Increase usage of local water supplies to reduce dependence on imported water;
- Complete the construction of infrastructure originally proposed to enable full utilization of water under the existing permit;
- Make efficient use of infrastructure investments to facilitate long-term goals for water management in the region; and
- Restore and maintain capacity of Denniston Reservoir through improved dredging maintenance.

## 6.2.2 DESCRIPTION OF THE PROPOSED PROJECT

The Proposed Project includes the following project components, as described in **Section 3.2**:

- 1) Water Right Permit 15882 – petition for extension of time;
- 2) New Diversion Structure and Pump Station – San Vicente Creek;
- 3) New and Upgraded Pipeline – between San Vicente Creek and Denniston Reservoir pump station (6,100 feet);
- 4) Denniston Water Treatment Plant (WTP) – expand capacity up to 1,500 gallons per minute (gpm);
- 5) New Booster Pump Station;
- 6) New Pipelines – along Bridgeport Drive (3,460 feet); and
- 7) Expanded sediment removal from the Denniston Reservoir.

The installation of the permanent diversion structure and pump station San Vicente Creek will replace the semi-permanent structure currently in use, and the new 6,100-foot-long underground pipeline will convey San Vicente Creek water from the permanent diversion to the Denniston Reservoir pump station. From there, existing pipelines will convey the water to the Denniston Creek WTP for treatment, which would be increased in capacity up to 1,500 gpm under the Proposed Project. The proposed booster pump station will be located adjacent to the existing Denniston Creek Pump Station to transfer treated water from the Denniston Tank into the distribution system throughout the CCWD service area, which will be supplemented by 3,460 feet of upgraded pipelines along Bridgeport Drive. The current dredging maintenance regime at Denniston Reservoir would also be expanded to enable higher quality of water diverted from Denniston Creek to the Denniston WTP.

## 6.2.3 KEY IMPACTS OF THE PROPOSED PROJECT

The impacts of the project components that make up the Proposed Project are evaluated in **Section 4.0** of this Draft EIR, summarized in **Table 2-1**, and in **Section 6.4.2**. Construction of the Proposed Project could result in potential short-term impacts associated with excavation of the pipeline routes, installation of the diversion structures, expansion of the capacity of Denniston water treatment plant (WTP), construction of the new Booster Pump Station,

installation of a new pipeline along Bridgeport Drive, and the dredging of Denniston Reservoir and the subsequent disposal of dredged materials. Full utilization of the existing water right would significantly reduce reliance on imported water and reduce the need for groundwater, but may impact resources reliant on surface water flows in Denniston and San Vicente Creeks.

### **6.3 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION**

In addition to the alternatives evaluated in **Section 6.4** below, off-site alternatives and a Denniston Reservoir Restoration alternative were considered for their potential to reduce environmental impacts of the Proposed Project. These alternatives were preliminarily considered but eventually excluded from full comparative analysis within this EIR because they were determined to be infeasible, unable to meet the objectives of the Proposed Project, and/or were not likely to reduce significant environmental impacts of the Proposed Project when viewed in conjunction with the shared points of diversion (POD) which both CCWD and the senior water rights holder utilize jointly. Alternatives considered, but rejected, are briefly discussed below.

#### **6.3.1 DENNISTON RESERVOIR OFF-STREAM ALTERNATIVES**

The National Parks Service (NPS), in a comment letter on the Notice of Preparation dated November 22, 2011, requested an analysis of the possibility of “an off-channel reservoir as an alternative to rehabilitation of Denniston Reservoir.” Two interpretations of the off-stream alternative were considered: 1) converting Denniston Reservoir to an off-stream storage pond and re-contouring Denniston Creek to follow its original stream channel, allowing water to bypass the reservoir; and 2) building a second off-stream reservoir to supplement the existing Denniston Reservoir in lieu of the expanded dredging program. Each of these alternatives would likely significantly convert agricultural land in order to build the off-stream reservoir, and would not allow for the permitted beneficial use of water from the Denniston Creek POD, which the agricultural diverter and CCWD share.

Furthermore, these off-stream alternatives would not prevent the other water right user from diverting from this location under their existing riparian rights (#S009375 and #S009376), thus it could not guarantee effectively creating an off stream alternative. Even if CCWD were to abandon the on-stream Denniston Reservoir as it is currently permitted, the other water right users would be under no obligation to do so. While building an off-stream reservoir could allow CCWD to meet its project objectives, it would eliminate CCWD's routine dredging maintenance and support of the jointly used POD shared with the senior water rights holder at Denniston Reservoir; this could lead to additional impacts downstream. Without the maintenance and support provided by CCWD, it is uncertain whether the other water users would be capable of

maintaining the original POD. Therefore, moving CCWD's POD to a different location would not be a beneficial alternative when considering the currently permitted and established use of water from this POD.

Denniston Reservoir and the associated dam function to trap sediment which would otherwise remain in Denniston Creek or travel downstream to Half Moon Bay Harbor. If the reservoir were abandoned by the agricultural diverters due to factors such as the lack of maintenance by CCWD, then significant downstream impacts would be likely to occur. Because the harbor has been altered so extensively from its original state, the increased sediment load that would be transported from Denniston Creek would be trapped in the harbor, reducing water quality, wildlife habitat values, and navigability within the harbor. Addressing this impact would result in extensive costs and environmental impacts as activities such as dredging of the harbor would likely ensue. This scenario would also allow for a greater amount of fine sediment deposition in the reaches below the reservoir and would create flood control and maintenance issues in the downstream portions of Denniston Creek.

Due to the location of the Denniston WTP, the terms of the existing water right Permit 15882, the existing riparian rights held by senior diverters (#S009375 and #S009376), and the topography of the area surrounding the project site, an alternate location for the construction of water diversion and pipeline facilities would be infeasible. CCWD maintains the water right permit for diversion of water from San Vicente and Denniston Creeks, thereby creating a situation where the current location of project components (both existing and proposed) is essential to achieve the goals and objectives of the Proposed Project.

## **6.4 ALTERNATIVES EVALUATED IN THIS DRAFT EIR**

Because Permit 15882 has been approved and water is currently being, and will continue to be, diverted from Denniston Creek, each of the following was considered as an operating alternative for the Proposed Project.

### **6.4.1 ALTERNATIVE A – LOWER (1,200 GPM) DENNISTON WTP CAPACITY**

#### **Description**

Under Alternative A, the project components would be similar to the Proposed Project, except that the capacity of the Denniston WTP would be expanded to only 1,200 gallons per minute (gpm). The project components of Alternative A would include:

- 1) Water Right Permit 15882 – petition for extension of time;
- 2) New Diversion Structure and Pump Station – San Vicente Creek;

- 3) New and Upgraded Pipeline – between San Vicente Creek and Denniston Reservoir pump station (6,100 feet);
- 4) Denniston WTP – expand capacity up to 1,200 gpm;
- 5) New Booster Pump Station;
- 6) New Pipelines – along Bridgeport Drive (3,460 feet); and
- 7) Expanded sediment removal from the Denniston Reservoir.

As discussed in **Section 3.3.2**, the maximum rate at which water may be diverted under the existing permit is 4.0 cubic feet per second (cfs), with a maximum of 2.0 cfs being diverted from each creek. Although CCWD's Denniston Creek diversions have come close to meeting this maximum diversion rate several times in the past, the entire permitted 2.0 cfs diversion rate has never been fully utilized. San Vicente was intermittently used in the mid 1980's but has not been used on a permanent basis to date. Similar to the Proposed Project, this alternative would ensure the permanent availability of authorized water through construction and maintenance of infrastructure. However, under Alternative A, the Denniston WTP would be expanded to only 1,200 gpm (2.67 cfs) capacity.

### **Ability to Meet Project Objectives**

Together, the extension of time, installation of necessary infrastructure, and capacity to divert water from both streams would allow the District to make beneficial use of water pursuant to Water Right Permit 15882 through implementation of Alternative A. The permanent diversion structure on San Vicente Creek and the full linkage to the rest of the CCWD distribution system through upgrades to the Bridgeport Pipeline would make this a viable option. The diversion of water at a rate up to the 1,200 gpm plant capacity (2.67 cfs) following the installation of the necessary infrastructure linking San Vicente Creek to the Denniston pumping station, would partially meet CCWD's objective to reduce dependency on outside water sources and to provide adequate local water supply in the event outside water sources are cut off, such as during an earthquake or other natural disaster.

### **Summary of Environmental Impacts**

Environmental impacts related to the project components that are the same as the Proposed Project (construction of the diversion facility, installation of the pipelines, construction of the pump stations, expansion of the Denniston WTP, and expanded maintenance practices at Denniston Reservoir) are detailed in **Section 4.0** and summarized in **Table 2-1**. The impacts of those components of Alternative A would likely be similar to the Proposed Project. Diverting up to the expanded plant capacity of 1,200 gpm (equivalent to 2.67 cfs) when sufficient water is available would cause the changes in creek flows under Alternative A, shown in **Tables 6-1** and **6-2**. Similar to the analysis presented in **Section 4.8**, changes in creek flows that could result from Alternative A have been analyzed under the two scenarios, San Vicente Preferred



(Table 6-1) and Denniston Preferred (Table 6-2), which represent the maximum range of impacts that could arise in each creek from implementation of Alternative A.

**TABLE 6-1**  
PROPOSED DIVERSIONS (ABOVE EXISTING CCWD DIVERSIONS) UNDER  
ALTERNATIVE A, SAN VICENTE PREFERRED

Dry Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)
October	0.25	0.25	0.00	0.42	0.42	0.00
November	0.40	0.40	0.00	0.29	0.29	0.00
December	0.44	0.45	0.00	0.39	0.39	0.00
January	1.18	0.43	0.75	0.86	0.86	0.00
February	1.49	0.00	1.49	1.09	1.09	0.00
March	1.75	0.22	1.53	1.16	1.16	0.00
April	0.41	0.41	0.00	0.50	0.50	0.00
May	0.00	0.00	0.00	0.30	0.30	0.00
June	0.00	0.00	0.00	0.34	0.34	0.00
July	0.00	0.00	0.00	0.29	0.29	0.00
August	0.00	0.00	0.00	0.18	0.18	0.00
September	0.00	0.00	0.00	0.14	0.14	0.00
<b>Total (AFY)</b>	<b>353</b>	<b>129</b>	<b>224</b>	<b>354</b>	<b>355</b>	<b>0</b>
Normal Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)
October	0.32	0.32	0.00	0.45	0.45	0.00
November	0.64	0.63	0.00	0.44	0.44	0.00
December	1.62	0.48	1.14	1.14	1.14	0.00
January	2.08	0.12	1.96	1.34	1.34	0.00
February	2.82	0.00	2.82	1.92	1.92	0.00
March	2.93	0.00	2.93	1.65	1.65	0.00
April	1.61	0.31	1.29	0.97	0.97	0.00
May	0.64	0.64	0.00	0.55	0.55	0.00
June	0.09	0.09	0.00	0.45	0.45	0.00
July	0.00	0.00	0.00	0.39	0.39	0.00
August	0.00	0.00	0.00	0.28	0.28	0.00
September	0.00	0.00	0.00	0.23	0.23	0.00
<b>Total (AFY)</b>	<b>758</b>	<b>154</b>	<b>604</b>	<b>584</b>	<b>584</b>	<b>0</b>

Wet Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)
October	0.33	0.33	0.00	0.50	0.50	0.00
November	0.75	0.75	0.00	0.59	0.59	0.00
December	1.94	0.28	1.66	1.34	1.34	0.00
January	4.03	0.00	4.03	3.01	2.00	1.01
February	4.28	0.00	4.28	3.11	2.00	1.11
March	4.79	0.00	4.79	3.24	2.00	1.24
April	3.29	0.00	3.29	1.95	1.95	0.00
May	1.90	0.32	1.58	1.01	1.01	0.00
June	1.05	0.59	0.46	0.86	0.86	0.00
July	0.71	0.70	0.01	0.81	0.81	0.00
August	0.52	0.52	0.00	0.65	0.65	0.00
September	0.48	0.48	0.00	0.58	0.58	0.00
<b>Total (AFY)</b>	<b>1,433</b>	<b>236</b>	<b>1,197</b>	<b>1050</b>	<b>850</b>	<b>200</b>

<sup>1</sup> The "Alternative A Diversions" are anything above the District's existing diversions that were reported to the SWRCB. Monthly diversion data for Denniston Creek is shown in **Table 4.8-5**, while existing diversions on San Vicente Creek are 0.00 cfs, as shown in **Table 4.8-4**.

**TABLE 6-2**  
PROPOSED DIVERSIONS (ABOVE EXISTING CCWD DIVERSIONS) UNDER  
ALTERNATIVE A, DENNISTON PREFERRED

Dry Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)	Baseline Flow (cfs)	Alternative A Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)
October	0.25	0.25	0.00	0.42	0.42	0.00
November	0.40	0.40	0.00	0.29	0.29	0.00
December	0.44	0.44	0.00	0.39	0.39	0.00
January	1.18	0.79	0.39	0.86	0.67	0.19
February	1.49	0.69	0.81	1.09	0.67	0.42
March	1.75	0.71	1.04	1.16	0.67	0.49
April	0.41	0.41	0.00	0.50	0.50	0.00
May	0.00	0.00	0.00	0.30	0.30	0.00
June	0.00	0.00	0.00	0.34	0.34	0.00
July	0.00	0.00	0.00	0.29	0.29	0.00
August	0.00	0.00	0.00	0.18	0.18	0.00
September	0.00	0.00	0.00	0.14	0.14	0.00
<b>Total (AFY)</b>	<b>353</b>	<b>220</b>	<b>133</b>	<b>354</b>	<b>289</b>	<b>65</b>

Normal Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)	Baseline Flow (cfs)	Alternative A Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)
October	0.32	0.32	0.00	0.45	0.45	0.00
November	0.64	0.63	0.00	0.44	0.44	0.00
December	1.62	0.95	0.67	1.14	0.67	0.47
January	2.08	0.79	1.29	1.34	0.67	0.67
February	2.82	0.69	2.13	1.92	0.67	1.25
March	2.93	0.71	2.22	1.65	0.67	0.98
April	1.61	0.61	0.99	0.97	0.67	0.30
May	0.64	0.64	0.00	0.55	0.55	0.00
June	0.09	0.09	0.00	0.45	0.45	0.00
July	0.00	0.00	0.00	0.39	0.39	0.00
August	0.00	0.00	0.00	0.28	0.28	0.00
September	0.00	0.00	0.00	0.23	0.23	0.00
<b>Total (AFY)</b>	<b>758</b>	<b>323</b>	<b>435</b>	<b>584</b>	<b>365</b>	<b>0</b>
Wet Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)	Baseline Flow (cfs)	Alternative A Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)
October	0.33	0.33	0.00	0.50	0.50	0.00
November	0.75	0.75	0.00	0.59	0.59	0.00
December	1.94	0.95	0.99	1.34	0.67	0.67
January	4.03	0.79	3.24	3.01	0.67	2.34
February	4.28	0.69	3.60	3.11	0.67	2.44
March	4.79	0.71	4.08	3.24	0.67	2.57
April	3.29	0.61	2.67	1.95	0.67	1.28
May	1.90	0.66	1.24	1.01	0.67	0.34
June	1.05	0.78	0.27	0.86	0.67	0.19
July	0.71	0.71	0.00	0.81	0.80	0.01
August	0.52	0.52	0.00	0.65	0.65	0.00
September	0.48	0.48	0.00	0.58	0.58	0.00
<b>Total (AFY)</b>	<b>1,433</b>	<b>475</b>	<b>958</b>	<b>1,050</b>	<b>465</b>	<b>0</b>

<sup>1</sup> The "Alternative A Diversions" are anything above the District's existing diversions that were reported to the SWRCB. Monthly diversion data for Denniston Creek is shown in **Table 4.8-5**, while existing diversions on San Vicente Creek are 0.00 cfs, as shown in **Table 4.8-4**.

### **Biological Resources**

Impacts to in-stream biological resources within the two creeks under Alternative A have the potential to be significant due to reduced water availability during base flow periods and

potential impacts to special status species and their habitats. However, measures proposed in **Section 4.3**, Biological Resources, would ensure project-related impacts are appropriately minimized, avoided, and/or mitigated.

Stream flow has the potential to be reduced downstream from the PODs in both creeks. Though the amount of water diverted under Alternative A would be less than under the Proposed Project, impacts would be similar and less than significant as both creeks will continue to receive natural run-off downstream of the diversions, groundwater discharges from the water table downstream of the diversions, and year-round coastal fog that provides a source of water to the riparian vegetation downstream of the diversions. Therefore, impacts to biological resources on San Vicente and Denniston Creek as a result of decreased water availability would be less than significant.

Under Alternative A, potential impacts to anadromous fish would be similar to those under the Proposed Project. This is because the likely causes for lack of spawning in Denniston and San Vicente Creek are Half Moon Bay Harbor, existing barriers and obstacles, and lack of suitable habitat; and not water flows. Further, based on the findings discussed in **Section 4.3**, Biological Resources, anadromous fish do not occur in San Vicente Creek or Denniston Creek.

As discussed in **Section 4.3**, dredging activities proposed under Alternative A, which are similar to those under the Proposed Project, would improve habitat conditions for some biological and public trust resources in the immediate vicinity of Denniston Reservoir and would prevent impacts downstream from increased siltation in the harbor. The project site is located within critical habitat for the California red-legged frog (CRLF). Dredging activities associated with maintaining Denniston Reservoir at a larger size and which is proposed under this Alternative would provide more edge effect for CRLF and therefore be beneficial to CRLF habitat.

With the implementation of appropriate measures to avoid, minimize, and/or mitigate potential impacts to biological resources, potential impacts under Alternative A would be less than significant.

### ***Hydrology and Water Quality***

Under Alternative A, the District would expand the capacity of the Denniston WTP to 1,200 gpm and then be able to divert and process up to 2.67 cfs total from both streams. This would result in impacts to surface waters under Alternative A as compared with the No Project/Baseline, but would likely result in lesser impacts when compared to the Proposed Project.

Under Alternative A, potential impacts to groundwater in the vicinity of the project site would be less than significant. As noted in **Section 4.8**, there is limited storage in the fracture granitics below the creeks near the diversion structures. However, San Vicente and Denniston Creeks

supply groundwater recharge for the downstream Airport Sub-basin along with the two 49-acre foot (AF) reservoirs maintained by the farmer on San Vicente Creek. Because CCWD would divert water under Alternative A at a lesser rate than under the Proposed Project, total diversions would be less and therefore potential impacts to groundwater recharge would be lower than under the Proposed Project.

### ***Other Impacts***

Short-term construction impacts resulting from Alternative A associated with aesthetics, air quality, greenhouse gases (GHG), cultural resources, hazard and hazardous materials, and noise would be the same as the Proposed Project. Long-term impacts to geology and soils would be the same as the Proposed Project.

## **6.4.2 ALTERNATIVE B – CURRENT (1,000 GPM) DENNISTON WTP CAPACITY**

### **Description**

Under Alternative B, the project components would be similar to those for the Proposed Project, except that the District would not expand its Denniston WTP capacity, but would instead divert only up to the current capacity of 1,000 gpm (equivalent to 2.23 cfs). The project components of Alternative B would include:

- 1) Water Right Permit 15882 – petition for extension of time;
- 2) New Diversion Structure and Pump Station – San Vicente Creek;
- 3) New and Upgraded Pipeline – between San Vicente Creek and Denniston Reservoir pump station (6,100 feet);
- 4) New Booster Pump Station;
- 5) New Pipelines – along Bridgeport Drive (3,460 feet); and
- 6) Expanded sediment removal from the Denniston Reservoir.

Similar to the Proposed Project, this alternative would ensure the permanent availability of authorized water through construction and maintenance of infrastructure. However, Alternative B would not expand the Denniston WTP and would run the plant at 1,000 gpm (2.23 cfs). While this would improve the District's ability to utilize local water sources, it would not allow for the maximum beneficial use of water under Permit 15882.

### **Ability to Meet Project Objectives**

Alternative B would still allow for water to be diverted under Water Right Permit 15882 and piped to the Denniston WTP, though the amount would be less than proposed under the Proposed Project and Alternative A. The reduced amount of water available for use would still allow CCWD to meet the project objective to reduce dependence on outside water sources and

provide adequate local water supply in the event outside water sources were cut off, such as during an earthquake or other natural disaster, although to a lesser extent than the Proposed Project or Alternative A.

### Summary of Environmental Impacts

Environmental impacts related to the project components that are the same as for the Proposed Project and Alternative A (construction of the diversion facility, installation of the pipelines, construction of the pump stations, and expanded maintenance practices at Denniston Reservoir) are detailed in **Section 4.0** and summarized in **Table 2-1**. The impacts of those components of Alternative B would likely be similar to the Proposed Project. Diverting up to the current plant capacity of 1,000 gpm (equivalent to 2.23 cfs) under Alternative B when that much water is available would cause the changes in creek flows shown in **Tables 6-3** and **6-4**. Similar to the analysis presented in **Section 4.8**, changes in creek flows that could result from Alternative B have been analyzed under the two scenarios, San Vicente Preferred (**Table 6-3**) and Denniston Preferred (**Table 6-4**), which represent the maximum range of impacts that could arise in each creek from implementation of Alternative B.

**TABLE 6-3**  
PROPOSED DIVERSIONS (ABOVE EXISTING CCWD DIVERSIONS) UNDER  
ALTERNATIVE B, SAN VICENTE PREFERRED

Dry Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)
October	0.25	0.25	0.00	0.42	0.42	0.00
November	0.40	0.40	0.00	0.29	0.29	0.00
December	0.44	0.44	0.00	0.39	0.39	0.00
January	1.18	0.16	1.02	0.86	0.86	0.00
February	1.49	0.00	1.49	1.09	1.09	0.00
March	1.75	0.00	1.75	1.16	1.16	0.00
April	0.41	0.34	0.07	0.50	0.50	0.00
May	0.00	0.00	0.00	0.30	0.30	0.00
June	0.00	0.00	0.00	0.34	0.34	0.00
July	0.00	0.00	0.00	0.29	0.29	0.00
August	0.00	0.00	0.00	0.18	0.18	0.00
September	0.00	0.00	0.00	0.14	0.14	0.00
<b>Total (AFY)</b>	<b>353</b>	<b>95</b>	<b>258</b>	<b>354</b>	<b>354</b>	<b>0</b>

Normal Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)
October	0.32	0.32	0.00	0.45	0.45	0.00
November	0.64	0.64	0.00	0.44	0.44	0.00
December	1.62	0.04	1.58	1.14	1.14	0.00
January	2.08	0.00	2.08	1.34	1.34	0.00
February	2.82	0.00	2.82	1.92	1.92	0.00
March	2.93	0.00	2.93	1.65	1.65	0.00
April	1.61	0.00	1.61	0.97	0.97	0.00
May	0.64	0.34	0.30	0.55	0.55	0.00
June	0.09	0.09	0.00	0.45	0.45	0.00
July	0.00	0.00	0.00	0.39	0.39	0.00
August	0.00	0.00	0.00	0.28	0.28	0.00
September	0.00	0.00	0.00	0.23	0.23	0.00
<b>Total (AFY)</b>	<b>758</b>	<b>84</b>	<b>674</b>	<b>584</b>	<b>584</b>	<b>0</b>
Wet Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)
October	0.33	0.33	0.00	0.50	0.50	0.00
November	0.75	0.75	0.00	0.59	0.59	0.00
December	1.94	0.00	1.94	1.34	1.34	0.00
January	4.03	0.00	4.03	3.01	2.00	1.01
February	4.28	0.00	4.28	3.11	2.00	1.11
March	4.79	0.00	4.79	3.24	2.00	1.24
April	3.29	0.00	3.29	1.95	1.95	0.00
May	1.90	0.00	1.90	1.01	1.01	0.00
June	1.05	0.15	0.90	0.86	0.86	0.00
July	0.71	0.26	0.45	0.81	0.81	0.00
August	0.52	0.47	0.05	0.65	0.65	0.00
September	0.48	0.48	0.00	0.58	0.58	0.00
<b>Total (AFY)</b>	<b>1,433</b>	<b>146</b>	<b>1,287</b>	<b>1,050</b>	<b>850</b>	<b>200</b>

<sup>1</sup> The "Alternative B Diversions" are anything above the District's existing diversions that were reported to the SWRCB. Monthly diversion data for Denniston Creek is shown in **Table 4.8-5**, while existing diversions on San Vicente Creek are 0.00 cfs, as shown in **Table 4.8-4**.

**TABLE 6-4**  
 PROPOSED DIVERSIONS (ABOVE EXISTING CCWD DIVERSIONS) UNDER  
 ALTERNATIVE B, DENNISTON PREFERRED

Dry Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)
October	0.25	0.25	0.00	0.42	0.42	0.00
November	0.40	0.40	0.00	0.29	0.29	0.00
December	0.44	0.45	0.00	0.39	0.39	0.00
January	1.18	0.79	0.39	0.86	0.23	0.63
February	1.49	0.69	0.81	1.09	0.23	0.86
March	1.75	0.71	1.04	1.16	0.23	0.93
April	0.41	0.41	0.00	0.50	0.47	0.03
May	0.00	0.00	0.00	0.30	0.30	0.00
June	0.00	0.00	0.00	0.34	0.34	0.00
July	0.00	0.00	0.00	0.29	0.29	0.00
August	0.00	0.00	0.00	0.18	0.18	0.00
September	0.00	0.00	0.00	0.14	0.14	0.00
<b>Total (AFY)</b>	<b>353</b>	<b>220</b>	<b>133</b>	<b>354.0</b>	<b>208.9</b>	<b>0.0</b>
Normal Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)
October	0.32	0.32	0.00	0.45	0.45	0.00
November	0.64	0.64	0.00	0.44	0.44	0.00
December	1.62	0.95	0.67	1.14	0.23	0.91
January	2.08	0.79	1.29	1.34	0.23	1.11
February	2.82	0.69	2.13	1.92	0.23	1.69
March	2.93	0.71	2.22	1.65	0.23	1.42
April	1.61	0.61	0.99	0.97	0.23	0.74
May	0.64	0.64	0.00	0.55	0.25	0.31
June	0.09	0.09	0.00	0.45	0.45	0.00
July	0.00	0.00	0.00	0.39	0.39	0.00
August	0.00	0.00	0.00	0.28	0.28	0.00
September	0.00	0.00	0.00	0.23	0.23	0.00
<b>Total (AFY)</b>	<b>758</b>	<b>323</b>	<b>435</b>	<b>584.0</b>	<b>216.2</b>	<b>0.0</b>



Wet Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) <sup>1</sup>	Resulting Creek Flows (cfs)
October	0.33	0.33	0.00	0.50	0.50	0.00
November	0.75	0.75	0.00	0.59	0.59	0.00
December	1.94	0.95	0.99	1.34	0.23	1.11
January	4.03	0.79	3.24	3.01	0.23	2.78
February	4.28	0.69	3.60	3.11	0.23	2.88
March	4.79	0.71	4.08	3.24	0.23	3.01
April	3.29	0.61	2.67	1.95	0.23	1.72
May	1.90	0.66	1.24	1.01	0.23	0.78
June	1.05	0.78	0.27	0.86	0.23	0.63
July	0.71	0.71	0.00	0.81	0.36	0.45
August	0.52	0.52	0.00	0.65	0.60	0.05
September	0.48	0.48	0.00	0.58	0.58	0.00
<b>Total (AFY)</b>	<b>1,433</b>	<b>475</b>	<b>958</b>	<b>1050.0</b>	<b>252.4</b>	<b>0.0</b>

<sup>1</sup> The "Alternative B Diversions" are anything above the District's existing diversions that were reported to the SWRCB. Monthly diversion data for Denniston Creek is shown in **Table 4.8-5**, while existing diversions on San Vicente Creek are 0.00 cfs, as shown in **Table 4.8-4**.

### **Biological Resources**

Alternative B is similar to Alternative A and the Proposed Project because CCWD would divert water from both San Vicente and Denniston Creeks. Similar to Alternative A and the Proposed Project, impacts to in-stream biological resources within the two creeks under Alternative B have the potential to be significant due to reduced water availability during base flow periods and impacts to special status species and their habitats. However, measures proposed in **Section 4.3** would ensure project-related impacts would be appropriately minimized, avoided, and/or mitigated.

Stream flow would be reduced downstream from the POD in both creeks under Alternative B. However, under Alternative B, CCWD would divert less water (up to 1,000 gpm or 2.23 cfs), and therefore the impacts to riparian vegetation and fisheries resources within both creeks under Alternative B would be less than under Alternative A or the Proposed Project.

Dredging activities proposed under Alternative B, which are similar to Alternative A and the Proposed Project, would improve habitat conditions for some biological and public trust resources in the immediate vicinity of Denniston Reservoir and would prevent impacts downstream from increased siltation in the harbor. Similar to Alternative A and the Proposed Project, dredging activities associated with maintaining Denniston Reservoir at a larger size

under Alternative B would provide more edge effects for CRLF and therefore be beneficial to CRLF habitat.

With the implementation of appropriate measures to avoid, minimize, and/or mitigate potential impacts to biological resources, potential impacts under Alternative B would be less than significant.

### ***Hydrology and Water Quality***

Under Alternative B, the District would divert up to a total of 2.23 cfs from both streams, which would result in impacts above the No Project/Baseline Alternative, but would likely result in lesser impacts when compared to the Proposed Project.

Under Alternative B, potential impacts to groundwater in the vicinity of the project site would be less than significant. As noted in **Section 4.8**, there is limited storage in the fracture granitics below the creeks near the diversion structures. However, both San Vicente and Denniston Creeks supply groundwater recharge for the downstream Airport Sub-basin along with the two 49 AF reservoirs maintained by the farmer on San Vicente Creek. Because CCWD would divert less water under Alternative B than for the Proposed Project, potential impacts to groundwater recharge would be reduced when compared with the Proposed Project.

### ***Other Impacts***

Short-term construction impacts resulting from Alternative B associated with aesthetics, air quality, GHG emissions, cultural resources, hazard and hazardous materials, and noise would be similar to those under the Proposed Project. Long-term impacts to geology and soils would be the same as for the Proposed Project.

## **6.4.3 ALTERNATIVE C – NO PROJECT/BASELINE ALTERNATIVE**

### **Description**

As required by CEQA *Guidelines* Section 15126.6(e), the No Project Alternative is evaluated here. The evaluation of the No Project Alternative allows decision-makers to compare the impacts of the Proposed Project against not proceeding with the Proposed Project. According to the CEQA *Guidelines* Section 15126.6(e)(2), the No Project Alternative shall discuss what would reasonably be expected to occur in the foreseeable future if the project were not approved.

For this EIR, the No Project Alternative is referred to as the “No Project/Baseline Alternative,” because existing operational activities that occur as part of the environmental baseline would continue to take place under Permit 15882. Under the No Project/Baseline Alternative,

infrastructure and operations currently implemented would continue to take place, which include the existing diversions of up to 1.89 cfs from Denniston Creek, but no new infrastructure would be constructed.

Although Permit 15882 authorizes the diversion of up to 2 cfs from Denniston Creek and 2 cfs from San Vicente Creek, under this alternative, the District would only divert up to 1.89 cfs from Denniston Creek, the maximum rate of diversion that has historically occurred. The Denniston WTP would continue to treat groundwater pumped from the Airport Aquifer wells and surface water from Denniston Creek, at varying rates based on flow rates and availability.

Under Alternative C, the project components discussed in **Section 3.2** would not be implemented; however, current water use would continue as allowed under water right Permit 15882. The proposed infrastructure intended to facilitate full beneficial use of currently-approved diversions, including the permanent diversion structure, pump station, and pipeline, would not be constructed at San Vicente Creek. Instead, the existing POD composed of sandbags would remain in place and continue to be used by the farmer who installed it. In addition, the Bridgeport Pipeline improvement, Denniston WTP capacity increase, and proposed Booster Pump Station would not be constructed. CCWD would continue to receive surface water from the Denniston Creek diversion while being supplemented by groundwater from the Denniston wells. Without the required infrastructure proposed under the Proposed Project and Alternatives A and B, CCWD would not receive surface water from San Vicente Creek. In addition to the proposed infrastructure not being constructed under Alternative C, the proposed expanded maintenance and dredging activities at Denniston Reservoir would not be implemented.

### **Ability to Meet Project Objectives**

Alternative C would not accomplish the basic objectives of the Proposed Project: to fully utilize local sources of water and reduce reliance on imported water, and to put local water to full beneficial use under water right Permit 15882. The inability to utilize San Vicente Creek would force potentially greater reliance on the water resources of nearby wells, thereby increasing impacts to groundwater in the Airport Aquifer. This would likely reduce the amount of local water available for development as up to one half of the current water right would be not be used. CCWD would remain significantly dependent on imported water sources, and would be unable to provide adequate potable water to its customers in the event imported water supplies were cut off, such as during a major earthquake.

### **Summary of Environmental Impacts**

The No Project/Baseline Alternative would eliminate the short-term impacts related to construction activities, which include temporary impacts to air quality, noise, traffic, and the use

of hazardous materials at the construction site. No diversions would occur from San Vicente Creek, so there would be no impacts to the hydrology of San Vicente Creek. No additional diversions would occur from Denniston Creek above the baseline 1.89 cfs, so no additional impacts to hydrology would occur under Alternative C.

### ***Biological Resources***

The No Project Alternative could result in potential long-term impacts relating to biological and public trust resources in Denniston Reservoir, Denniston Creek, and San Vicente Creek.

Without the increased dredging maintenance at Denniston Reservoir, siltation would continue and the capacity of the reservoir would diminish. This could potentially reduce riparian habitat values upstream on Denniston Creek, as well as reduce suitable habitat for CRLF in the vicinity of Denniston Reservoir. This reduction in dredging maintenance could also mean a reduction in the amount of water diverted over time from Denniston Creek. The maximum amount of allowable water could still be obtained from Denniston Creek with the extension of the current dredging; however, this sole dependence on one creek instead of two could result in greater impacts to Denniston Creek. Long-term impacts to sensitive species within San Vicente Creek could occur if the current temporary diversion, primarily relied on by the adjacent farm, remains in place and unimproved. The current diversion structure is in such poor condition that it is subject to washing out during rain events, causing debris and sediment to be flushed downstream towards the Fitzgerald Marine Reserve and the Pacific Ocean.

### ***Other Impacts***

The long-term reliance on imported water would likely increase GHG emissions as the energy used to pump water from Crystal Springs Reservoir would continue to be needed. If local water were to be used in place of imported water, further dependence on groundwater from the same airport aquifer would likely be used to replace the water available under the existing permit from San Vicente Creek, which would not be integrated into the CCWD water supply under Alternative C.

## **6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE**

CEQA *Guidelines* Section 15126.6(d) requires an evaluation of alternatives to the proposed project.

The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in

addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.

Consistent with this CEQA requirement, a summary matrix has been prepared which qualitatively compares the effectiveness of each of the alternatives in reducing environmental impacts. This matrix, presented in **Table 6-5** identifies whether each impact area of the project alternatives would have greater, lesser, or similar impacts compared with the Proposed Project.

**TABLE 6-5**  
ENVIRONMENTAL IMPACT COMPARISON BETWEEN THE PROPOSED PROJECT AND ALTERNATIVES

Issue Area	Project Alternatives		
	Alternative A Lower (1,200 gpm) Denniston WTP Capacity	Alternative B Current (1,000 gpm) Denniston WTP Capacity	Alternative C No Project/Baseline Alternative
Aesthetics	Similar	Similar	Lesser
Air Quality	Similar	Similar	Lesser
Agricultural and Forestry Resources	Similar	Similar	Similar
Biological Resources	Similar	Lesser	Similar
Cultural Resources	Similar	Similar	Lesser
Geology and Soils	Similar	Similar	Lesser
Greenhouse Gas Emissions	Similar	Similar	Greater
Hazards and Hazardous Materials	Similar	Similar	Lesser
Hydrology and Water Quality	Lesser	Lesser	Lesser
Land Use	Similar	Similar	Similar
Noise and Vibration	Similar	Similar	Lesser
Population and Housing	Similar	Similar	Similar
Public Services, Utilities, and Recreation	Similar	Similar	Lesser
Transportation and Circulation	Similar	Similar	Lesser

Generally, the environmentally superior alternative is the alternative that would cause the least damage to the biological and physical environment. Because implementation of the No

Project/Baseline Alternative (Alternative C) would result in fewer adverse environmental effects than would occur under the other alternatives (Alternative A and Alternative B), the No Project/Baseline Alternative (Alternative C) would be considered the environmentally superior alternative. However, the No Project/Baseline Alternative would not achieve any of the project objectives.

If the No Project Alternative is the environmentally superior alternative, CEQA *Guidelines* Section 1526.6(e)(2) requires identification of an environmentally superior alternative among the other alternatives considered in the EIR.

When comparing the remaining development alternatives, the Proposed Project is the environmentally superior alternative. Under the Proposed Project, all impacts would be reduced to less-than-significant levels after mitigation. While some impacts under Alternative A or Alternative B may be lower when compared to the Proposed Project, these alternatives are less able to meet the project objectives of improving the overall reliability of the CCWD water supply system and increasing the usage of local water supplies.

# **SECTION 7.0**

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REPORT PREPARATION AND PERSONS/ORGANIZATIONS  
CONSULTED

## **7.0 REPORT PREPARATION AND PERSONS/ORGANIZATIONS CONSULTED**

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### **7.1 COASTSIDE COUNTY WATER DISTRICT**

David R. Dickson, District Manager  
Joe Guistino, Superintendent of Operations

### **7.2 EIR CONSULTANTS**

#### **ANALYTICAL ENVIRONMENTAL SERVICES**

Principal:	David Zweig, P.E.
Project Manager:	Peter Bontadelli
Technical Staff:	Annalee Sanborn, Deputy Project Manager Trent Wilson, Senior Analyst Bill Arnerich, Senior Biologist Tobin Rodman, Archaeologist Jacqueline McCrory, Associate Erin Quinn, Associate David Sawyer, Associate
Graphics:	Dana Hirschberg, Senior Graphics Analyst Glenn Mayfield, GIS and Graphics Specialist

#### **BALANCE HYDROLOGICS (HYDROLOGICAL AND GROUNDWATER MODELING)**

Barry Hecht, CBG, CHg, Senior Principal  
Austin Jena Krause, Hydrologist/Geomorphologist  
Travis Baggett, Hydrologist/Meteorologist, Project Manager



# **SECTION 8.0**

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## 8.0 REFERENCES

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# **SECTION 9.0**

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ACRONYMS

## 9.0 ACRONYMS

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AB	Assembly Bill
ABAG	Association of Bay Area Governments
AES	Analytical Environmental Services
af	acre feet
AFY	acre feet per year
ALUP	Airport Land Use Plan
amsl	above mean sea level
APZ	Approach Protection Zone
AQMD	Air Quality Management District
BAAQMD	Bay Area Air Quality Management District
BMP	best management practices
BP	before present
BRA	Biological Resources Assessment
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Program
Cal/EPA	California Environmental Protection Agency
Cal/OSHA	California Occupational Safety and Health Administration
CalFire	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAPs	Criteria Air Pollutants
CARB	California Air Resources Board
CAT	Climate Action Team
CBC	California Building Standards Code
CCA	California Coastal Act
CCAA	Clean Air Act Amendments
CCR	California Code of Regulations
CCWD	Coastside County Water District
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfs	cubic feet per second
CFR	Code of Federal Regulations
CGS	California Geological Survey
CHRIS	California Historical Resources Information System

CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide
CRHR	California Register of Historical Resources
CRLF	California Red-legged Frog
CSC	California species of concern
CWA	Clean Water Act
cy	cubic yards
dB	decibel
dBA	A-weighted decibel level
DD	developmentally disabled
DOD	Department of Defense
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EDR	Environmental Data Resources, Inc.
EIR	Environmental Impact Report
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESU	Evolutionarily Significant Unit
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHSZ	Fire Hazard Safety Zone
FIRMs	Flood Insurance Rate Maps
FUDS	formerly used defense site
GGNRA	Golden Gate National Recreation Area
GHG	greenhouse gas
gpm	gallons per minute
GPS	Global Positioning System
HMBP	Hazardous Materials Business Plans
Hz	Hertz
IPCC	Intergovernmental Panel on Climate Change
IRF	Intermediate Regional Flood
IS	Initial Study
ITP	Incidental Take Permit
km	kilometer
LCP	Local Coastal Program
Ldn	Day/Night Noise Level

Leq	Equivalent Noise Level
LRA	Local Responsibility Area
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level
MCV	Manual of California Vegetation
MG	million gallons
mg	milligram
MLD	most likely descendant
MMI	Modified Mercalli Intensity Scale
MMRP	Mitigation Monitoring and Reporting Plan
MSDS	Material Safety Data Sheet
MT	metric tonnes
MWSD	Montara Water and Sanitary District
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEHRP	National Earthquake Hazards Reduction Program
NEHRPA	National Earthquake Hazards Reduction Program Act
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NHTSA	National Traffic Safety Administration
NMFS	National Marine Fisheries Service
NO <sub>2</sub>	Nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOP	Notice of Preparation
NO <sub>x</sub>	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Parks Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
OSHA	Occupational Safety and Health Act
PG&E	Pacific Gas & Electric Company
PM	particulate matter
POD	Point of Diversion
PPV	Peak Particle Velocity
PRC	Public Resources Code
PRMHC	Pillar Ridge Manufactured Home Community
pws	planning watershed
RCRA	Resource Conservation and Recovery Act

REC	Recognized Environmental Conditions
RMP	Risk Management Plan
ROG	Reactive Organic Gases
RPZ	Runway Protection Zone
RRMP	Riparian Restoration and Monitoring Program
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SCAQMD	South Coast Air Quality Management District
SCS	sustainable community strategy
SDWA	Safe Drinking Water Act
SFBAAB	San Francisco Bay Area Air Basin
SFGS	San Francisco Garter Snake
SFPUC	San Francisco Public Utilities Commission
SFRWQCB	San Francisco Regional Water Quality Control Board
SIP	State Implementation Plan
SO <sub>2</sub>	Sulfur dioxide
SOPs	Standard Operating Procedures
SRA	State Responsibility Area
SWPPP	Storm Water Pollution Prevention Plan
SWRB	State Water Rights Board
SWRCB	State water Resource Control Board
TAC	Toxic Air Contaminant
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TOZ	Traffic Overflight Zone
UBC	Uniform Building Code
UCMP	University of California Museum of Paleontology
USACE	U.S. Army Corps of Engineers
USDOT	U.S. Department of Transportation
USFWS	U. S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
WPT	Western Pond Turtle
WSE	water surface elevation
WTP	Water Treatment Plant

# APPENDICES

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# **APPENDIX A**

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NOTICE OF PREPARATION/INITIAL STUDY



Notice of Preparation

To: State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814 (Address)

From: Coastside County Water District
766 Main Street
Half Moon Bay, CA 94019 (Address)

Subject: Notice of Preparation of a Draft Environmental Impact Report

Coastside County Water District will be the Lead Agency and will prepare an environmental impact report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study (X is is not ) attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to David R. Dickson, General Manager at the address shown above. We will need the name for a contact person in your agency.

Project Title: Denniston/San Vicente Water Supply Project

Project Applicant, if any: Coastside County Water District

Date: 10/19/11
Signature: [Handwritten Signature]
Title: GENERAL MANAGER
Telephone: 650-726-4405

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

**COASTSIDE COUNTY WATER DISTRICT  
766 MAIN STREET  
HALF MOON BAY, CA 94019**

**INITIAL STUDY**

**I. BACKGROUND**

PROJECT TITLE: Denniston/San Vicente Water Supply Project  
Petition for Extension of Time for Permit 15882

PERMIT: 15882

APPLICANT: Coastside County Water District  
766 Main Street  
Half Moon Bay, CA 94019

APPLICANT'S  
CONTACT PERSON: David R. Dickson  
General Manager  
766 Main Street  
Half Moon Bay, CA 94019  
(650) 726-4405

GENERAL PLAN DESIGNATION: Rural Development

ZONING: Rural Development (Agriculture and Private Recreation) District

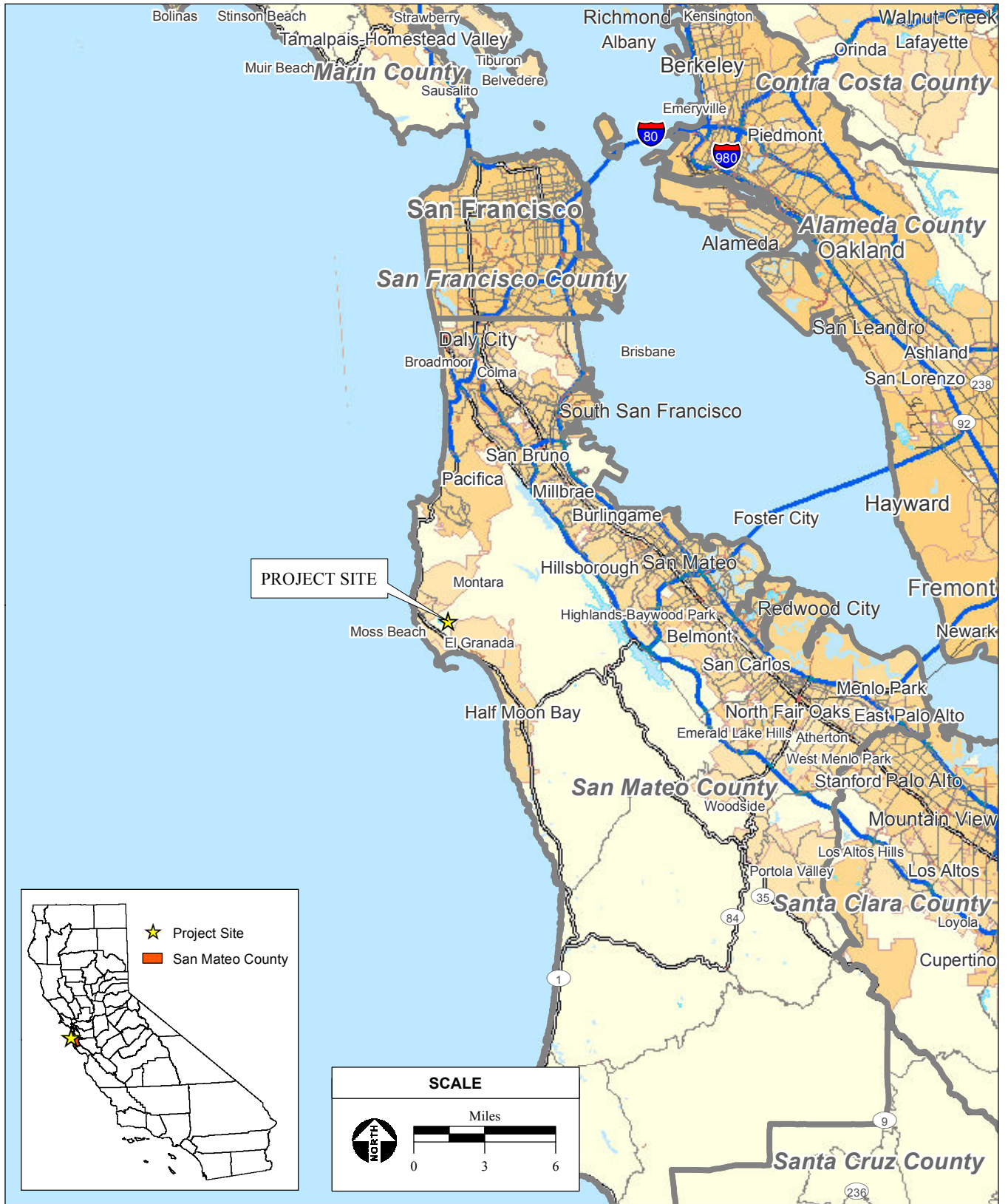
**INTRODUCTION**

The Coastside County Water District (CCWD) provides service to an area covering over 14 square miles in San Mateo County along the California coast. The CCWD service area includes the City of Half Moon Bay and unincorporated areas of San Mateo County including Miramar, Princeton by the Sea and El Granada. The CCWD is seeking approval of a petition for extension of time from the State Water Resources Control Board (SWCRB) for water right Permit 15882 (Application 22860). The approval of this extension of time would allow CCWD to complete construction of a pipeline and infrastructure improvements to facilitate full beneficial use of currently approved diversions under Permit 15882. This would increase the availability and reliance on a local water source and lessen dependence on imported water from the San Francisco Public Utilities Commission (SFPUC).

The project site is shown in **Figures 1 and 2**. The project site is located within the "Montara, California" U.S. Geological Survey (USGS) 7.5 minute topographic quadrangle at Township 5N, Range 6W, Section 2, Mt. Diablo Base and Meridian. The elements of the proposed project described below are located in the northern portion of the CCWD service area.

**ENVIRONMENTAL SETTING**

Specific elements of the proposed project are located in the northern portion of the CCWD service area in San Mateo County, California. Denniston Creek and the existing Denniston Reservoir are located northeast of the Half Moon Bay Airport on the inland side of Highway 1.

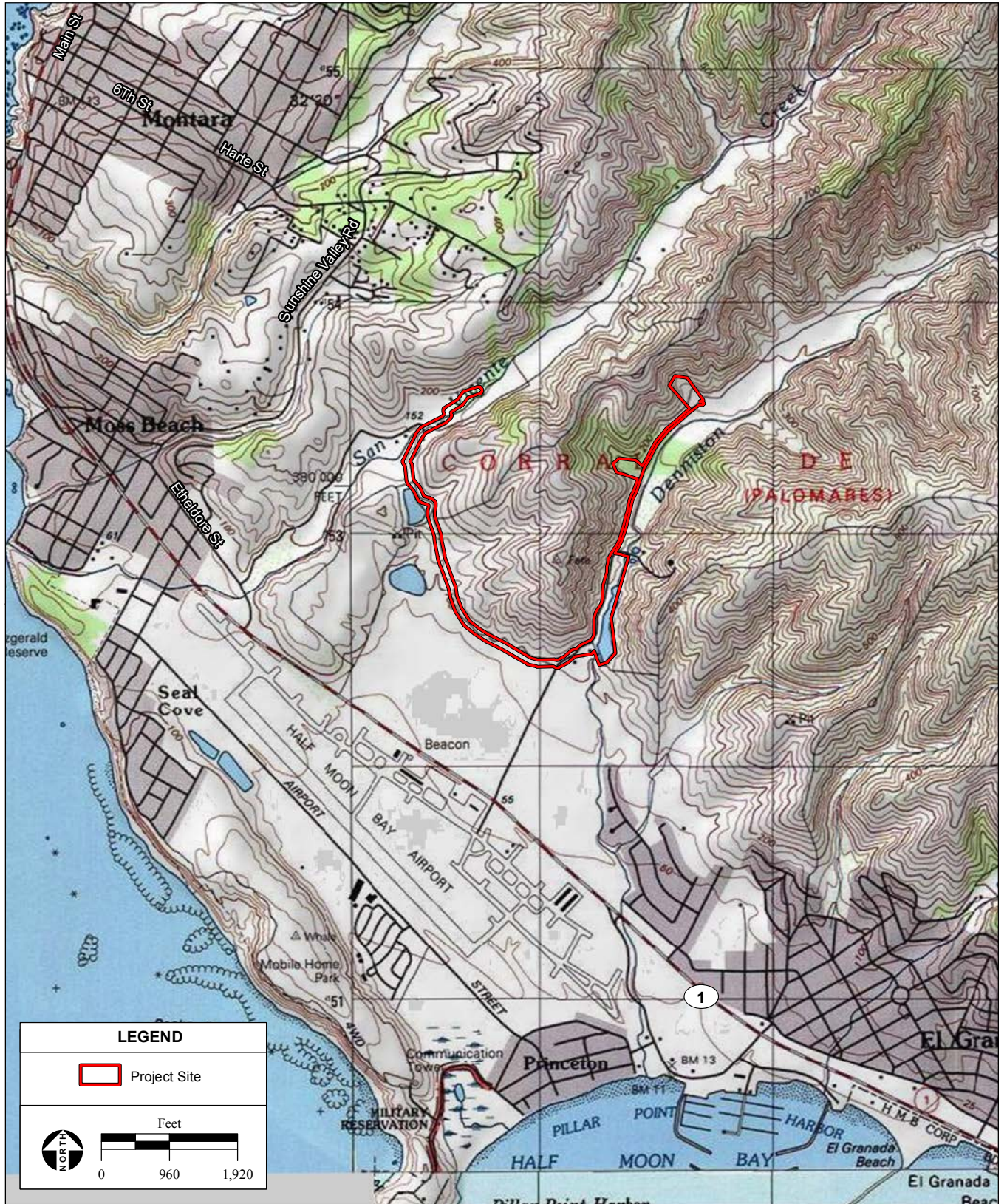


SOURCE: StreetMap North America, 2009; AES, 2011

CCWD Denniston/San Vicente Water Supply Initial Study / 211525 ■

**Figure 1**  
Regional Location





SOURCE: "Montara Mountain, CA" USGS 7.5 Minute Topographic Quadrangle, T4S & 5S R5W & 6W, Unsectioned Area of Corral de Tierra, Mt. Diablo Baseline & Meridian; AES, 2011

CCWD Denniston/San Vicente Water Supply Initial Study / 211525 ■

**Figure 2**  
Site and Vicinity



The Denniston Creek watershed covers approximately 2,600 acres and discharges into Pillar Point Harbor which is located approximately 1.2 miles south of the existing Denniston Reservoir.

The existing Point of Diversion (POD) on San Vicente Creek is located approximately 4,300 feet due north of Denniston Reservoir. The San Vicente Creek watershed covers approximately 1,200 acres and discharges into the Pacific Ocean within the boundaries of the Fitzgerald Marine Reserve.

This area is located in the California Coast Range geomorphic province, which is considered a seismically active region. Elevations at the project site range from 110 feet above mean sea level (amsl) along the proposed pipeline to 275 feet amsl at the northernmost dredge material disposal site (**Figure 3**).

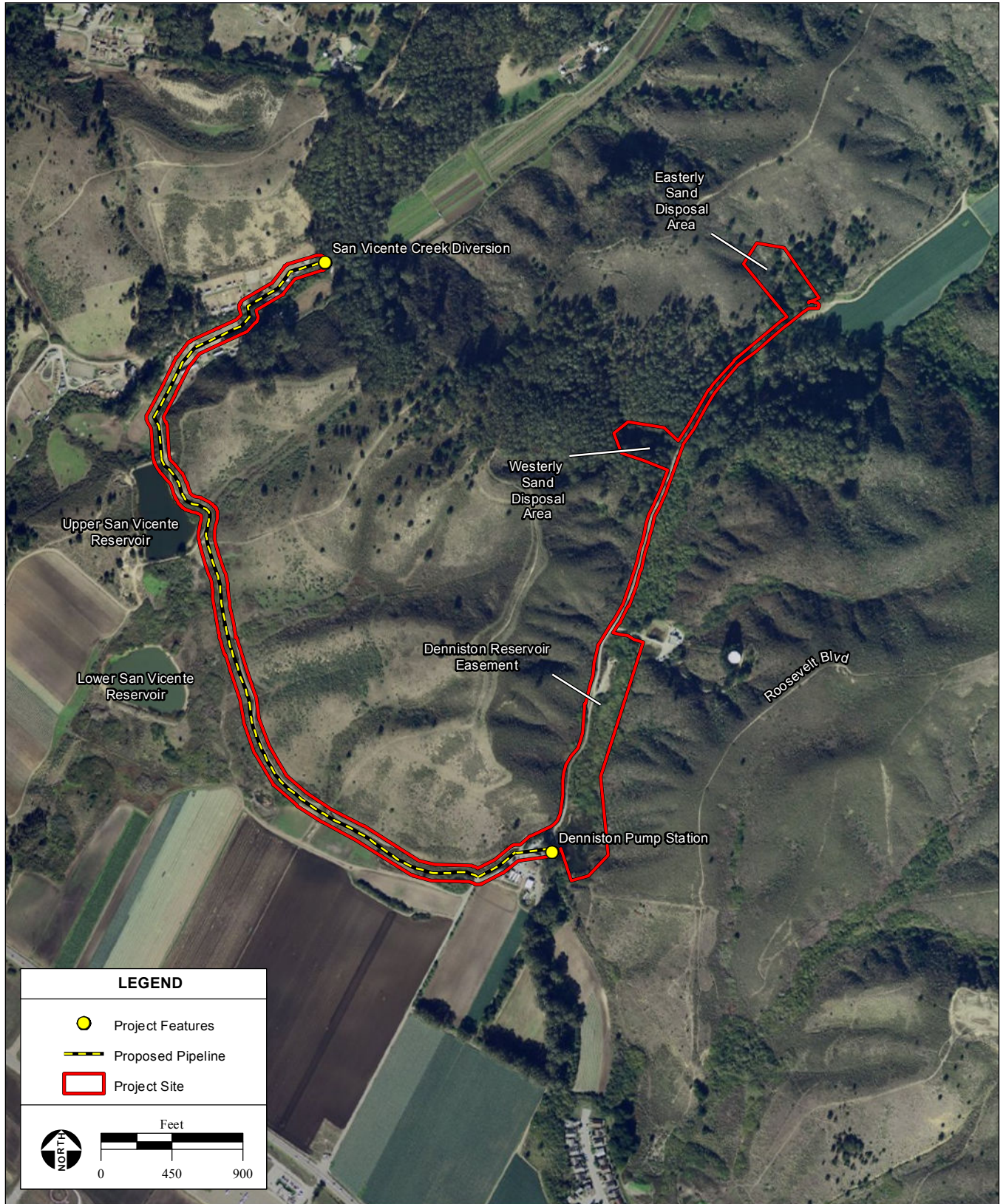
The topography of the surrounding area consists of rolling hills transitioning to a coastal plain. Surrounding land uses include agricultural, residential and commercial areas. The Half Moon Bay Airport is located approximately one half mile to the south and west of the elements of the proposed project. The current land uses within the two watersheds are dominated by open space, recreational (equestrian and hiking), and agriculture.

The climate in the region is relatively mild, a result of being moderated by the Pacific Ocean. Temperatures range from an average of 47 degrees Fahrenheit in the winter to 62 degrees Fahrenheit in the summer. The rainy season starts in November and runs through March, with an average precipitation of 26.33 inches per year<sup>1</sup>.

## **PROJECT DESCRIPTION**

To expand its local water supply, CCWD filed water-right application 22680 with the State Water Rights Board (SWRB) in 1966. In 1969, the SWRCB, the successor to the SWRB, issued water-right Permit 15882. The permit authorizes CCWD to divert up to 2 cubic feet per second (cfs) from both Denniston and San Vicente Creeks on a year-round basis. The proposed facilities listed in the 1966 application include: a permanent diversion facility on San Vicente Creek consisting of a sump and pump station (a limited seasonal diversion is in place; improvements to diversion and the pump station are part of proposed project); a 6,100-foot-long 8-inch diameter pipeline from the San Vicente diversion to Denniston Reservoir pump station (part of proposed project); a pump station at the westerly end of Denniston Reservoir (in place); a water treatment plant (WTP) located northerly of this reservoir (in place and with enhanced treatment capacity approved/in place); and a treated water pipeline from the treatment plant to the existing water distribution system via the CCWD's other WTP (in place).

Project components to be analyzed in this document include: 1) a permanent diversion structure to replace the semi-permanent structure currently in use on San Vicente Creek; 2) a pump station located at the new permanent diversion; 3) a 6,100 foot long pipeline to convey San Vicente Creek water to the existing Denniston Reservoir pump station; 4) full beneficial use of the total amount of water that would be diverted from Denniston and San Vicente Creeks under Permit 15882; and 5) expanded sediment removal and maintenance activities within the existing Denniston Reservoir to ensure that the existing diversion can be fully utilized as authorized under Permit 15882. Completion of the first three components of the proposed project would ensure infrastructure originally authorized under the Permit would be in place to ensure the full beneficial use of the water under existing Permit 15882. Project components, including the construction area and the existing easements which would be used for the expanded sediment removal and disposal, are shown on **Figure 3** and discussed further below.



SOURCE: Kennedy Jenks, 2010; USGS Aerial Photograph, 6/30/2008; AES, 2011

CCWD Denniston/San Vicente Water Supply Initial Study / 211525 ■

**Figure 3**  
Project Components

### **Construction**

The project would include the construction of a permanent diversion structure at the location of the San Vicente Creek POD authorized under Permit 15882. Water diverted from the San Vicente Creek would be conveyed via upgraded piping to Upper San Vicente Reservoir and then via a new 4,300 foot pipeline that would connect to the existing Denniston Creek Pump Station located adjacent to Denniston Reservoir. Water would then be pumped from this existing pump station to the Denniston Creek WTP. The proposed new pipeline would be installed within existing CCWD easements generally following an existing farm road to the Denniston Creek pump station. The proposed new pipeline route is oriented along the toe of the slope that separates the San Vicente Creek and Denniston Creek watersheds at the coastal plain transition. This proposed alignment from Upper San Vicente Reservoir is similar to the alignment of the temporary above ground pipeline that CCWD has used in the past to convey water from San Vicente Creek to the Denniston Creek pump station and WTP.

Construction activities would be limited to the installation of the new diversion structure and associated pump station at the San Vicente Creek POD and the installation of the conveyance pipeline from this POD to the Denniston Pump Station. This construction would complete the infrastructure needed to allow full beneficial use of water under existing Permit 15882. The pipeline would be installed using open cut trenching, which requires clearing of vegetation, excavation of the trench, pipeline installation, backfill and compaction, and re-grading where necessary. Where feasible, native material generated during trenching would be retained for backfill. Excavated materials that cannot be utilized for backfill would be hauled offsite to an appropriate disposal facility, and any additional backfill material needed would be imported. Bay Area Air Quality Management District's basic mitigation measures would be implemented as part of the project design. Depending on site conditions, trenches would be secured at the end of each workday by covering with steel plates, filling with backfill material, or installing barricades to restrict access.

### **Operation and Maintenance Activities**

The CCWD currently maintains Denniston Reservoir under a Long-term Streambed Alteration Agreement (LSAA) with the California Department of Fish and Game (DFG) for sediment removal in the immediate vicinity of the existing Dam. This ongoing LSAA authorized a onetime removal of about 800 cubic yards (cy) of sediment during the first year, with disposal in the existing approved disposal area in a eucalyptus grove north of the reservoir. The LSAA also authorizes the removal of 400 cy of material annually as part of the CCWD's ongoing diversion point maintenance at Denniston Reservoir, and CCWD is in the third year of this program.

Currently, both the CCWD and the neighboring farm pump water from the existing diversion. The CCWD pumps the water to the Denniston WTP for treatment via a pump station located near the existing Denniston Reservoir Dam. Under the proposed project, the CCWD would expand the area and scope of the ongoing sediment removal program. CCWD's easement for Denniston Reservoir encompasses over three surface acres, which is approximately the size of the original reservoir built in the early 1900's. The current LSAA covers the annual sediment removal on about 0.5 acres immediately adjacent to the dam. While this enables the CCWD to meet their immediate needs, it is not an optimal program for the ongoing maintenance of the reservoir over time. The CCWD proposed a larger sediment removal maintenance plan, which would include the clearing of the entire sediment-filled, overgrown area of the original reservoir.

This expanded reservoir management plan would include the restoration of a creek channel within the exiting riparian area to the north of Denniston Reservoir. The expanded maintenance of the reservoir would result in habitat benefits for the local red legged frog population by



increasing the edge effect of the reservoir while providing assurance of a more sustainable water source for the CCWD and the farmer operating the croplands adjacent to the proposed project site. The restored capacity of the reservoir is approximately 30 acre feet, which is less than the maximum 30 day combined storage needs of the CCWD and the farmer that use this reservoir. This annual maintenance program would also help to ensure the continued capture of sediment at the reservoir and prevent its conveyance downstream to Princeton Harbor. CCWD already has easements both for the entire reservoir where the sediment removal would occur and for the two existing sediment disposal areas. This expanded sediment removal program would require either an amendment to the existing LSAA or a new LSAA between the CCWD and DFG.

Ongoing operational activities associated with the remainder of the proposed new facilities may include routine maintenance of the pipeline, maintenance and/or possible future dredging of the new diversion structure at San Vicente Creek, although the latter is not currently anticipated, and maintenance of the pump station at San Vicente Creek.

### ***Project Objectives***

San Mateo County and the City of Half Moon Bay have both adopted growth control measures, which have reduced the overall rate of new development within CCWD's service area. These growth restrictions, in conjunction with Local Coastal Program (LCP) policies, require phasing of utility infrastructure, including water production, treatment, and transmission facilities, to correspond to planned development rate in the LCP. The slow but steady growth planned for in the LCP, in combination with the escalating costs and uncertainty associated with the long-term reliability of water imported from SFPUC, requires CCWD to fully utilize local supplies to ensure that current and already approved long-term water demands for authorized growth are met. This project does not modify the CCWD's level of service or the number of allowable hook ups; the use of local supplies would reduce the dependence on imported water but not modify the overall demand for water. In short, the proposed project would meet the following objectives:

- Improve the overall reliability of the local CCWD water supply system, particularly in the event of a disaster such as a major earthquake;
- Maximize usage of local water supply and improve the balance between imported and local sources;
- Complete the construction of infrastructure originally anticipated to enable full beneficial utilization of diverted water under the existing permit; and
- Put in place a full maintenance program at the existing Denniston Reservoir.

### **PROJECT BACKGROUND**

CCWD receives its water supply from four sources: 1) Denniston and San Vicente Creeks, 2) wells adjacent to Palarcitos Creek, 3) wells near Denniston Creek, and 4) SFPUC water from Pilarcitos Lake and Crystal Springs Reservoir. The local water sources utilized by CCWD include surface and groundwater, which CCWD operates in a conjunctive use manner. In 2010, approximately 88 percent (%) of the annual CCWD-wide demand was met by water purchased from SFPUC with the remaining 12% produced locally from ground and surface water (CCWD, 2010). The amount of water available from SFPUC has recently been capped and may be further reduced in the future, increasing the need for CCWD to fully utilize and integrate all local water sources.

The existing CCWD system consists of two water treatment plants, 17 miles of transmission pipeline, 83 miles of distribution pipeline, several water storage tanks and supporting equipment and facilities. CCWD has implemented, and is continuing to implement, capital projects to improve efficiency and reliability, and ensure treatment capacity to allow full development and



use of local ground water, surface water, and purchased water. CCWD approved and completed the upgrade of the El Granada Transmission Pipeline between the Denniston WTP and the Nunes Water Treatment Plant (Nunes WTP). This project helped to facilitate the exchange of local source water and purchased water for utilization in all parts of the CCWD service area. Water from the northern portion of CCWD's service area, which comes from the two creek diversions and the Denniston Creek well field, now can be shared with the southern portions of the CCWD service area.

CCWD completed modifications to the Denniston storage tank in 2009 to remove the chlorine contact time limitations that had restricted ability of the CCWD to treat flows, and CCWD recently began construction of improvements to the Denniston WTP. The upgrades at the Denniston WTP would allow the full use of generally lower quality raw water from the existing diversions, as well as the groundwater from the Denniston well field. These improvements, when combined with the other relatively recent improvements, such as the El Granada Pipeline, would improve the reliability and security of the CCWD's local water supply. With the construction of the components covered in the proposed project, the complete infrastructure would be in place to fully utilize the water available under Permit 15882.

The proposed permanent diversion structure on San Vicente Creek would replace a simple diversion ditch and temporary sandbag impoundment that supplies water to Upper San Vicente Reservoir via an existing pipeline. The existing diversion on San Vicente Creek is used jointly by CCWD and the local farmer who stores water in both Upper and Lower San Vicente Reservoirs for irrigation. The farmer generally installs and maintains the diversion annually. The new diversion structure would maintain water supplies for both CCWD and the farmer and should improve stream conditions at the POD.

Denniston Reservoir, which was built by local farmers in the early 1900s, functions today as the diversion point on Denniston Creek from which water is pumped to the Denniston WTP. This diversion also serves the local farmers who divert directly to on-farm use. The Denniston Reservoir is currently maintained by CCWD through annual dredging activities covered under LSAA #1600-2007-0480-3. All dredged material is placed at existing disposal sites approximately one half mile up canyon from Denniston Reservoir.

CCWD filed water-right Application 22680 with the State Water Rights Board (SWRB) in 1966. In 1969, the SWRCB, the successor to the SWRB, issued water-right Permit 15882. The permit authorizes CCWD to divert up to 2 cubic feet per second (cfs) each from Denniston and San Vicente Creeks. The proposed facilities listed in the original application include:

- A permanent diversion facility on San Vicente Creek consisting of a sump and pump station and a below-ground pipeline from the San Vicente diversion to Denniston Creek (components of the Proposed Project);
- A pump station at the westerly end of Denniston Reservoir (in place);
- A water treatment plant located southerly of this reservoir (in place, and with completion of the pretreatment improvements underway will address the water quality issues that have limited the ability to fully utilize the approved surface water right in the past); and
- A treated water pipeline from the Denniston WTP to the Nunes WTP and water distribution system further south (in place).

In 1973, CCWD completed construction of the Denniston Project, which included the Denniston pump station, the Denniston WTP, the Denniston water storage tank, and a limited capacity pipeline connecting the storage tank to the main distribution system. The Denniston Creek diversion has been utilized to date by CCWD with up to 1.9 cfs being diverted at various times

of the year. Historic usage of the diversion on San Vicente Creek by the CCWD has been limited to some domestic use in the 1980's, when a temporary, mostly above-ground pipeline from Upper San Vicente Reservoir to the Denniston Creek pumping station was installed and used. This practice has been limited due to water quality concerns and the treatment limitations at the Denniston WTP. These concerns would be addressed when this proposed project is complete and full beneficial utilization of the permitted water can begin.

Permit 15882 originally specified a 1971 deadline for completing proposed improvements and putting all water to beneficial use by 1972. Since these dates, CCWD has filed petitions for extension of time. Delays to complete the full infrastructure required to fully utilize the water under the existing permit were unavoidable, as the recent modifications to the Denniston WTP demonstrate. The upgrades to the Denniston WTP were required to address Department of Health Services restrictions. Likewise, the El Granada Pipeline upgrade construction was delayed due to appeals to the California Coastal Commission.

The current petition for extension of time was filed in June 2004. The SWRCB issued a public notice for this extension on November 19, 2009. In response to this notice, the National Park Service filed a letter to protest dated December 22, 2009 and the DFG filed a memorandum dated January 14, 2010. The SWRCB found both protests failed to meet acceptability requirements for protests. There are no protests to the current extension of time pending before the SWRCB.

In a letter dated October 13, 2010, the SWRCB informed CCWD that an environmental document would have to be prepared to evaluate the impacts of the potential increase use of the approved diversions that would occur if the extension of time is approved. CCWD has decided to prepare an Environmental Impact Report (EIR), which would address the elements of the required project infrastructure and the extension of time to put the water to full beneficial use in the same document. The document would also serve as the required CEQA document for any permitting required for the project and the expanded maintenance program at Dennison Reservoir.

## **REGULATORY ENVIRONMENT**

The CCWD is the lead agency under CEQA with the primary authority for project approval. In addition, the following responsible, trustee, and federal agencies may have jurisdiction over some or the entire proposed project:

- California State Water Resources Control Board – responsible agency under CEQA for approval of the extension of time petition;
- North Coast Regional Water Quality Control Board – Section 401 Water Quality Certification;
- U.S. Fish and Wildlife Service (USFWS) – Federal Endangered Species Act (ESA) Compliance;
- National Marine Fisheries Service (NMFS) – Federal ESA Compliance;
- California Department of Fish and Game (DFG) – California Endangered Species Act (CESA) Compliance and Lake and Streambed Alteration Agreement and CEQA trustee agency;
- U.S. Army Corps of Engineers (USACE) – Section 404 Permit; and
- San Mateo County – conformance with the Local Coastal Program (LCP).

## II. DETERMINATION

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A NEGATIVE DECLARATION will be prepared.

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

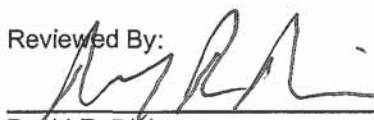
I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Prepared By:

  
Peter Bontadelli  
Analytical Environmental Services

10/19/11  
Date

Reviewed By:

  
David R. Dickson  
Coastside County Water District

10/19/11  
Date

(Form revised 2009)

Authority: Public Resources Code Sections 21083, 21084, 21084.1, and 21087.

Reference: Public Resources Code Sections 21080(c), 21080.1, 21080.3, 21082.1, 21083, 21083.1 through 21083.3, 21083.6 through 21083.9, 21084.1, 21093, 21094, 21151; *Sundstrom v. County of Mendocino*, 202 Cal. App. 3d 296 (1988); *Leonoff v. Monterey Board of Supervisors*, 222 Cal. App. 3d 1337 (1990).

### III. ENVIRONMENTAL IMPACT ANALYSIS

The proposed project could potentially affect the environmental factors checked below. Refer to the checklists located in the following pages for more details.

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Aesthetics                      | <input type="checkbox"/> Agriculture and Forestry Resources            | <input type="checkbox"/> Air Quality                         |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources                 | <input type="checkbox"/> Geology and Soils                   |
| <input type="checkbox"/> Hazards and Hazardous Materials | <input checked="" type="checkbox"/> Hydrology and Water Quality        | <input type="checkbox"/> Land Use and Planning               |
| <input type="checkbox"/> Mineral Resources               | <input type="checkbox"/> Noise   | <input type="checkbox"/> Population and Housing              |
| <input type="checkbox"/> Public Services                 | <input type="checkbox"/> Recreation                                    | <input type="checkbox"/> Transportation and Circulation      |
| <input type="checkbox"/> Utilities and Services System   | <input checked="" type="checkbox"/> Mandatory Findings of Significance | <input checked="" type="checkbox"/> Greenhouse Gas Emissions |

1. Aesthetics.	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### **Environmental Setting**

The project area is adjacent to scenic resources characteristic of San Mateo County coastal area, including mountainous landscapes, agricultural settings including cropland and several reservoirs, ocean views, and riparian areas. The project site itself contains agricultural settings, riparian areas, and hills covered in grasslands and coastal scrub. The existing land use of the project site is consistent with the rural aesthetic quality of the project area and nearby vicinity.

#### **Impact Discussion**

##### *Question A*

The proposed project would involve the installation of a pipeline. The pipeline would replace an existing underground pipeline for approximately one fourth its length in the northern edge of the project site, from the POD to Upper San Vicente Reservoir. The pipeline would branch at this point to allow both the farmer operating the adjacent croplands to continue to fill Upper San Vicente Reservoir, and the CCWD to pump water to its existing pump station at Denniston Reservoir. This pipeline would be placed along or within the existing farm road from Upper San Vicente Reservoir to the pump station at Denniston Reservoir.

The proposed project also involves construction of a permanent diversion on San Vicente Creek within private property. The diversion is surrounded by dense vegetation and cannot be seen from any adjoining property. Utilities necessary for the operation of the new POD would be installed underground and therefore not affect the visual quality of the area.

Another project component includes the dredging of Denniston Reservoir for long-term maintenance of sedimentation. The accumulation of sediment at the reservoir has resulted in a willow and cattail-dominated stream channel. Dredging activities would remove some of this accumulated sediment and associated vegetation, visually opening the stream channel and creating a larger open water area at Denniston Reservoir. This would improve the aesthetic nature of the reservoir and associated stream channel as it would recreate conditions at the time the reservoir was constructed. The dredged spoils would be deposited in two disposal sites north of Denniston Reservoir adjacent to a farm road (refer to **Figure 3**). When deposited, the dredged spoils would be spread out across the sites, effectively preventing the spoils from being seen even from the farm road. The two disposal sites are also surrounded by eucalyptus trees further shielding the dredged spoils from view. No impacts would occur to scenic vistas.

#### *Question B*

The proposed project would not damage any rock outcroppings or historic buildings. Some trees may be removed from the entrances of the disposal sites and would consist of eucalyptus trees. Additionally, willow trees and existing cattails might be removed from within the Denniston Reservoir as part of the dredging maintenance activities. As stated above, this would visually expand the view of Denniston Reservoir and would not detract from the aesthetic value of the area, as both the reservoir and the rechanneled stream course would be expanded and maintained. The few trees that would require removal would not result in impacts to visual resources since the trees removed will constitute a very small fraction of the total trees within the area. Additionally, these areas where tree removal would take place are not visible from any public roadways, including Highway 1. Highway 1 is located approximately 2,000 feet to the southwest of the project site, and this portion of Highway 1 is not designated as state scenic highway<sup>2</sup>. No impacts would occur to scenic resources.

#### *Question C and D*

The surrounding visual character and quality would not be altered since the project components would either be placed underground, situated low to the ground, or be concealed by dense vegetation. No new sources of light or glare would result from the project. No impacts would occur to the existing visual characteristics of the area.

#### *Findings*

No impacts would occur to aesthetics as a result of the project. This resource has been adequately addressed within this document and will not be discussed further in the EIR.

<b>2. Agriculture and Forestry Resources</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>In determining whether impacts to agricultural resources are significant environmental impacts, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:</p>				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping & Monitoring Program of the California Resources Agency, to non-agricultural uses?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Environmental Setting**

The project site is located in San Mateo County and is designated as Rural Land Use under the San Mateo County General Plan Land Use Element.<sup>3</sup> Permitted land uses within the Rural Land Use category include agriculture and timber production.<sup>4</sup> Active agricultural fields bound the project site to the south, east, and west. The current diversion on San Vicente Creek is maintained by the neighboring farmer, and water is utilized for crop irrigation. The diversion on Denniston Creek is also shared by CCWD with local farmers. The farmers hold water rights on San Vicente Creek and Denniston Creek senior to those held by CCWD. Because of this, the farmers have priority for diversion and beneficial use of water on the two creeks. The use of water by CCWD would not affect the senior water rights of the farmers who share the PODs. The proposed project would not interfere with the maintenance of Upper or Lower San Vicente Reservoirs which appear to be significant contributors to recharging the groundwater levels in the shared aquifer. The pipeline replacement from the San Vicente diversion to the Upper San Vicente Reservoir as part of this proposed project would extend the life of the currently shared pipeline for this portion.

## ***Regulatory Framework***

### **Federal Regulations**

#### Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that federal programs are administered in a matter that is compatible with state and local units of government, and private programs and policies to protect farmland (7 U.S.C. § 4201).

### **State Regulations**

#### California Farmland Mapping and Monitoring Program (FMMP)

The FMMP, which monitors the conversion of the state's farmland to and from agricultural use, was established by the Department of Conservation, under the Division of Land Resource Protection. The program maintains an inventory of state agricultural land and updates its "Important Farmland Series Maps" every two years. The FMMP is an informational service only and does not constitute state regulation of local land use decisions.

#### Williamson Act

The Williamson Act is a State program that was implemented to preserve agricultural land. Under the provisions of the Williamson Act (California Land Conservation Act 1965, Section 51200), landowners contract with the county to maintain agricultural or open space use of their lands in return for reduced property tax assessments. No portion of the project site is under Williamson Act contract.

### ***Impact Discussion***

#### Question A

The project site is currently designated as Rural Land Use under the San Mateo County General Plan and zoned for agricultural and private recreational use. Implementation of the proposed project would not conflict with existing land use designations. Construction activities would be limited to the installation of pipeline along an existing roadway, installation of a permanent diversion structure within San Vicente Creek, as well as the long-term maintenance and dredging of the Denniston Reservoir. CCWD's water rights are less senior than those of farmers who currently maintain the diversions, so water supply for agricultural uses would not be affected. The permanent POD on San Vicente Creek would benefit both CCWD and the local farmers who share the POD. Likewise, the improved maintenance of the shared diversion at Denniston Reservoir would also have benefits to both the local farmers and CCWD. Therefore the overall project as designed would not adversely affect current agricultural practices or water use. The project site does not contain areas designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance; therefore, there would be no impacts associated with such lands.

#### *Questions B and C*

The proposed project would not involve any construction or operational activities that conflict with existing zoning for agricultural use, timber production, or a Williamson Act contract. The project site is currently designated as Rural Land Use and zoned for agricultural and private recreational use. The proposed project would not result in converting Farmland to non-agricultural uses. The project site is not located in an area zoned for timber production. No changes in land use or zoning would occur under the proposed project. The proposed project would not involve the conversion of forest land to non-forest use, nor would it conflict with existing zoning for forest land. Project approval would not conflict with any land use plan, policy, or regulation.

*Questions D and E*

The site is currently designated as Rural Land Use, which includes agricultural purposes. The project site would not convert Farmland to non-agricultural uses.

The project site is not zoned as timberland. The only trees that would be removed as a result of the proposed project include small willow and other riparian species adjacent to the POD and Denniston Reservoir as part of the routine dredging. Due to the limited impacts, no Timber Harvest Plan is required for this project. Any trees requiring removal would not exceed the threshold of trees outlined in the long term maintenance agreement (LSAA) entered into between the CCWD and the CDFG for the maintenance of Denniston Reservoir and would be fully mitigated in accordance with that LSAA. As such, the proposed project would not result in impacts to forest resources.

*Findings*

No impacts would occur to agricultural or forest resources as a result of the proposed project. This resource has been adequately addressed within this document and will not be additionally discussed in the EIR.

<b>3. Air Quality.</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Environmental Setting**

The project is located within the San Francisco Bay Area Air Basin (SFBAAB), which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The climate of the region is generally Mediterranean in character, with mild, rainy winter weather from November through April, and warm to cool weather with persistent coastal stratus and fog from May through October. The SFBAAB is generally affected by regionally high pollution emissions.



Air quality in the area is a function of the criteria air pollutants emitted locally, the existing regional ambient air quality, and the meteorological and topographic factors that influence the intrusion of pollutants into the area from sources outside the immediate vicinity.

## **Regulatory Framework**

### **Federal Regulations**

#### 1977 Federal Clean Air Act (CAA)

The 1977 Federal Clean Air Act (CAA) required the Environmental Protection Agency (EPA) to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for the six “criteria” air pollutants, ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, respirable particulate matter, and lead. The EPA publishes criteria documents to justify the choice of standards. Pursuant to the 1990 Clean Air Act Amendments (CAAA), the EPA has classified air basins (or portions thereof) as either “attainment” or “non-attainment” for each criteria air pollutant, based on whether or not the NAAQS have been achieved. The SFBAAB is designated as either attainment or unclassified for criteria air pollutants.

### **State Regulations**

#### California Clean Air Act (CCAA)

The California Air Resources Board (CARB) regulates mobile emissions sources and oversees the activities of Air Quality Management District’s (AQMDs). CARB regulates local air quality indirectly by California Ambient Air Quality Standards (CAAQS) and vehicle emission standards by conducting research activities, and through its planning and coordinating activities. California has adopted standards that are more stringent than the federal standards for criteria air pollutants. Under the California Clean Air Act (CCAA), patterned after the federal CAA, areas have been designated as attainment or non-attainment with respect to CAAQS.

**Table 2** shows state standards for ozone, PM<sub>2.5</sub>, and PM<sub>10</sub>. The SABAAB is designated under the NAAQS as nonattainment for 8-hour ozone and 24-hour PM<sub>2.5</sub>. The SABAAB is designated under the CAAQS as nonattainment 1- and 8-hour ozone, annual and 24-hour PM<sub>10</sub>, and annual PM<sub>2.5</sub>. The SFBAAB is in attainment or is unclassified for all other criteria pollutants under the NAAQS and the CAAQS.

**TABLE 1 - CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS**

<b>Pollutant</b>	<b>Averaging Time</b>	<b>CAAQS</b>	<b>NAAQS</b>
Ozone	8-hour	0.070 ppm	0.075 ppm
	1 hour	0.09 ppm	-
Particulate Matter (PM <sub>2.5</sub> )	24 hour	-	35 µg/m <sup>3</sup>
	Annual	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
Respirable Particulate Matter (PM <sub>10</sub> )	24 hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
	Annual	20 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>

ppm = parts per million by volume

µg/m<sup>3</sup> = micrograms per cubic meter of air

Source: BAAQMD, 2010.

### **Ozone**

Ozone is a criteria air pollutant that is created in the presence of sunlight through a photochemical reaction involving reactive organic gas (ROG) and nitrogen oxide (NOX). ROG and NOX are emitted as result of incomplete combustion of fossil fuels. Because

photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. As a photochemical pollutant, ozone is formed only during daylight hours under appropriate conditions, but is destroyed throughout the day and night. Ozone is considered a regional pollutant, as the reactions forming it take place over time and are often most noticeable downwind from the sources of the emissions.

### **Particulate Matter**

Particle pollution is a mixture of microscopic solids and liquid droplets suspended in air. This pollution, also known as particulate matter, is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores). The size of particles is directly linked to their potential for causing health problems. Particles smaller than 10 micrometers ( $\mu\text{m}$ ) in diameter (PM<sub>10</sub>) but greater than 2.5  $\mu\text{m}$  pose the greatest problems, because they can be inhaled deep into the lungs. Exposure to such particles can affect respiratory system function.

### **Impact Discussion**

#### *Questions A through C*

Construction activities for the proposed project would include trenching, backfilling, and a small amount of on-site soil hauling. Construction would also include the construction of a permanent diversion structure on San Vicente Creek at the site of the existing POD. Construction activities would be minimal with some use of heavy equipment. Construction would last approximately six months and would occur five days a week, eight hours a day.

In accordance with the 2010 BAAQMD CEQA Guidelines the project would be considered below screening levels set forth by the BAAQMD based on the following:

- The project is not listed on Table 3-1 of the 2010 BAAQMD CEQA Guidelines; therefore, it is considered below the applicable screening level size;
- The project design would include all Basic Construction Mitigation Measures provided in the 2010 BAAQMD CEQA Guidelines;
- Construction of the project would not include demolition, construction of two or more phase or land uses at the same time, extensive site preparation or material transport.

The only additional maintenance of the proposed project is the expanded dredging needs at Denniston Reservoir. This expanding dredging would result in an increase in the number of truck trips required to haul sediment to the spoils sites; however, the number of trips does not constitute a significant increase. No significant additional operational air pollutant emissions would occur with the implementation of the project.

Therefore, construction and operation of the proposed project would not conflict with or obstruct implementation of the applicable air quality plan or violate any air quality standard or contribute substantially to an existing or projected air quality violation or expose sensitive receptors to substantial pollutant concentration. This would be a less than significant impact.

#### *Questions D and E*

Past, present and future development projects contribute to a region's air quality conditions on a cumulative basis; therefore by its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of the NAAQS or CAAQS. If a project's individual emissions contribute toward exceedance of the standards, then the project's cumulative impact on air quality would be significant. In developing attainment designations for criteria pollutants, the EPA considers the region's past, present and future

emission levels. As stated above the project would not cause an exceedance of the BAAQMD CEQA standards and therefore air quality in the region would not be cumulatively impacted.

Construction of the proposed project would temporarily and intermittently emit odors from heavy duty construction equipment operation. The nearest odor sensitive receptors are residences located more than 1,500 feet southeast of the project site. Construction odors generally dissipate quickly and are generally not noticeable beyond project boundaries. Given the distance to the nearest sensitive receptor and the temporary and intermittent nature of project construction, no odor impact would occur during construction of the proposed project. No odors are anticipated to be emitted during operation of the Proposed Project. The proposed project would not result in a cumulatively considerable net increase in NOx, ROG, PM<sub>10</sub>, or PM<sub>2.5</sub> for which the SFBAAB is in nonattainment or create objectionable odors affecting a substantial number of people. No impact to air quality would occur as a result of the proposed project.

*Findings*

The proposed project would not result in a significant impact to air quality. This resource has been adequately addressed within this document and will not be additionally discussed in the EIR.

<b>4. Biological Resources.</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the DFG or USFWS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the DFG or USFWS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the federal Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory corridors, or impede the use of native wildlife nursery sites?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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**Environmental Setting**

The proposed project site is located approximately one mile east of the Pacific Ocean. San Vicente and Denniston Creeks are adjacent to the proposed project site on the northwestern and eastern edges. Agricultural land is located to the south and west of the proposed project site in lowland areas while the proposed project is located on the lower foothills that rise above the lowland. The area immediately around the proposed project site is dominated by coastal scrub, eucalyptus woodland and areas of grassland. Denniston Reservoir is located on the eastern edge of the proposed project site. Routine dredging occurs at Denniston Reservoir as part of a long term maintenance agreement (LSAA) with the DFG. The dredging is monitored by a qualified biologist so that no impacts to sensitive species occur as a result of the ongoing reservoir maintenance. Dredge spoils are transported to the disposal sites to the north of Denniston Reservoir. This routine maintenance has resulted in increased habitat values at the Reservoir for special status species such as red-legged frog, which is discussed further below.

Past surveys of the project areas, or portions of the project area have been performed by Lampman and Associates (1975), Wildlife Research Associates (WRA; 2005), and recent stream assessments and biological surveys of San Vicente and Denniston Creeks were conducted by Steele Biological Consulting in 2010 and 2011. AES biologists conducted biological surveys on May 16, 17, and July 17, 2011.

Habitat types occurring on the project site have been characterized and evaluated for their potential to support regionally occurring special-status species<sup>5</sup>. Additionally, the site was assessed for the presence of potential jurisdictional water features (waters of the U.S.), isolated wetlands, and other biologically sensitive features.

**Vegetation Communities**

Seven general vegetation community types were identified within the proposed project site: ruderal/disturbed, California annual grassland, coastal prairie, willow riparian forest, coastal sage scrub, eucalyptus woodland, and agricultural.

**Waters of the U.S.**

The 2011 biological field surveys identified one seasonal wetland, two creeks, and three seasonal drainages in the study area, in addition to three existing reservoirs. The seasonal wetland is situated at the base of a hillside adjacent to Upper San Vicente Reservoir in the northern portion of the project site with no apparent channel to provide inflow. The seasonal wetland and drainages may be subject to regulation by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA).

The two creeks include Denniston Creek and San Vicente Creek, where the proposed POD is located. These creeks are likely to be subject to regulation by USACE under Section 404 of the CWA, as well as by the DFG under Sections 1600 – 1616 of the California Fish and Game Code. The shapes, sizes, and jurisdictional status of all features identified herein are approximate and have not been confirmed by jurisdictional agencies.

## **Special-status Species**

For the purposes of this assessment, “special status” is defined to be a species of management concern to State and Federal resource agencies.

Twenty five special-status plant species, eight animal species, and three sensitive habitats are identified to occur within five miles of the project site<sup>6</sup>. Red-legged frog has been documented onsite at Denniston Reservoir. The sensitive habitats identified include Northern Coastal Salt Marsh, Northern Maritime Chaparral, Serpentine Bunchgrass, and Valley Needlegrass Grassland.

Based on habitat requirements, geographic range, elevation range, and past occurrences, each special-status species was assessed and compared to the habitats occurring within the property and surrounding areas. Those that were determined to not have potential to occur on the project site are not discussed further in this report. Those that were determined to have potential to occur on the project site are discussed further below.

Based upon this review and comparing the habitat needs of species and the habitat found in the study area, 24 special-status plant species and 11 special-status animal species were identified as likely to occur on-site.

### ***Impact Discussion***

#### *Question A*

No special-status plant species were observed on the project site during the biological surveys. However, the surveys were performed outside the proper period of identification for several special status plants that have the potential to occur onsite. The coastal prairie, coastal scrub, and riparian woodland habitats onsite all provide potentially suitable habitat for a number of special status species. Evidence of special status species observed onsite included several woodrat nests located in the coastal scrub adjacent to the pipeline route, known red-legged frog occurrences in Denniston Reservoir and along San Vicente Creek. Denniston Creek below Denniston provides suitable habitat for resident trout and anadromous fish. DFG in the LSAA has identified a barrier to anadromous fish approximately one mile downstream from Denniston Reservoir. Denniston Reservoir itself provides suitable habitat for red-legged frog, western pond turtle, San Francisco Garter Snake, and several special status birds. The proposed project has the potential to result in significant impacts to special-status species should they occur onsite.

#### *Question B*

Portions of the project would be located within riparian habitats or other sensitive natural communities, such as Coastal Prairie. Construction of the proposed project could result in significant impacts to these sensitive natural communities.

#### *Question C*

As discussed above, the proposed project site contains one seasonal wetland, three intermittent drainages, two creeks, and several existing water storage reservoirs, all of which could be potentially subject to regulation. Development of the proposed project could have an adverse effect through direct removal, filling, or hydrological interruption on jurisdictional waters. This is a potentially significant impact.

#### *Question D*

The two creeks on the proposed project site provide valuable wildlife corridors connecting the hills to the ocean. The proposed project would result in temporary impacts to San Vicente

Creek as the POD is upgraded. Temporary impacts would also result at Denniston Reservoir as part of the ongoing dredging maintenance that would occur there. These are potentially significant impacts to wildlife movement corridors.

**Questions E and F**

Several local plans and policies, including the San Mateo County General Plan and Local Coastal Plan, apply to the proposed project site. No adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan apply to the project site. The proposed project would adhere to guidelines outlined in the local plans pertaining to vegetation, wildlife, and wetlands. This is a less than significant impact.

**Findings**

The proposed project could result in potentially significant impacts to biological resources. Biological Resources will be discussed further in the EIR.

<b>5. Cultural Resources.</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Environmental Setting**

A records search for the project site was conducted at the Northwest Information Center (NWIC) of the California Historical Resources Information System, housed at California State University, Sonoma, on the 12<sup>th</sup> of May, 2011 (NWIC #10-1079). The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of archaeological and historic records and reports for a 16 county area that includes San Mateo.

The NWIC records search verified that two prehistoric cultural resources or historic properties have been reported within the project area. These resources are P-41-068 and P-41-069 or Nelson 415 and 416 as they were originally recorded. These two sites are prehistoric shell mounds recorded by N.C. Nelson during the first intensive survey of archaeological sites in the Bay Area between 1906 and 1908 initiated through the University of California, Berkeley. Their locations were reported in Nelsons 1909 publication “San Francisco Bay Shellmounds” and the NWIC listed their locations as approximate. Further, a 1982 survey located probable shell midden remnants (P-41-239) in a resource a few hundred meters south of the project area in

agricultural land, which is a likely candidate for the westernmost Nelson Shellmound numbered 415.

A total of 11 previously recorded cultural resources have been recorded within the one kilometer area studied surrounding the project area. Additionally, 27 previous studies have been conducted within the same area along with nine overview studies.

AES initiated consultation by notifying the Native American Heritage Commission (NAHC) on May 2, 2011. The NAHC was asked to search their Sacred Lands Inventory File and to submit a list of local Native American contacts that may have information regarding the project area. The NAHC responded on June 10, 2011 with the results of the sacred lands file and Native American contacts. The record search failed to identify known sacred Native American sites within or adjacent to the project site. However, the NAHC provided a list of five Native American individuals and organizations that potentially have knowledge of the project site. The individuals and organizations identified by the NAHC were contacted by letter on July 26, 2011 to solicit their comments and concerns regarding the project. To date, none of the individuals contacted expressed any concern or provided specific information regarding Native American resources within the proposed project site.

A field examination of the property and proposed pipeline alignments was conducted on May 16<sup>th</sup> and 17<sup>th</sup> as well as July 28<sup>th</sup>, 2011, which resulted in the discovery of no new cultural resources. However, two previously recorded resources were identified through research. These resources could not be relocated and no surface manifestations of these resources were present within the proposed project site.

### ***Regulatory Framework***

Under CEQA, historical resources are considered part of the environment (Public Resources Code, §§ 21060.5, 21084.1). An *historical resource* “includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California (Public Resources Code, §§ 21084.1, 5020.1, subd. (j)).”

The California Register of Historic Resources (CRHR) was created in 1992 (Public Resources Code, § 5024.1.) and is administered by the State Historical Resources Commission according to regulations implemented January 1, 1998 (Cal. Code Regs., tit. 14, § 4850 et seq.).

CEQA requires consideration of potential impacts to resources that are listed, or qualify for listing, on the California Register, as well as resources that are significant but may not qualify for listing. Under the CEQA Guidelines, an effect is considered significant if a project will result in a substantial adverse change to the resource (PRC Section 21084.1). Actions that would cause a substantial adverse change to a historical resource include demolition, replacement, substantial alteration, and relocation. When it is determined that a project may cause a substantial adverse change, alternative plans or measures to mitigate the effects to the resource(s) must be considered.

### ***Impact Discussion***

#### ***Questions A-D***

The field investigation failed to locate any cultural resources, which concurred with the negative findings of the Native American Heritage Commission. The resources revealed by the NWIC records search from the early 1900's could not be relocated. It is likely that the degree of error

in mapping during the 1909 study was large enough to have erroneously plotted the resources. Observations of the local land forms suggest that these sites lay just to the west of the project site. Additionally, impacts may occur to cultural resources should any be unearthed during construction of the proposed project. This is considered a potentially significant impact.

**Findings**

The proposed project could result in potentially significant impacts to cultural resources. Cultural Resources will be discussed further in the EIR.

<b>6. Geology and Soils.</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated in the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines & Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soils, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternate wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Environmental Setting**

**Topography**

The project site is located on sloping terrain along the foothills of Montara Mountain, which is situated in the northern section of the Santa Cruz Mountain Range. Elevations along the site range from approximately 100 feet amsl, rising from the southeast to the northwest to



approximately 180 feet amsl. Steep uphill slopes are located to northeast of the project site, while lesser downhill gradients are found to the southwest, which continues a gradual downhill trend towards the coast.

## Soils

### Soil Surveys

A summary of the soil characteristics for the major map units found on the project site is provided in **Table 3**.

**TABLE 3 – PROJECT SITE SOILS**

Map Unit Symbol(s)	Map Unit Name	Expansiveness	Erosion Susceptibility
EhE3	Elkhorn sandy loam	Moderate	Mild
FaA, FaB, FaC	Farallone loam	Low	Moderate
Gu	Gullied land (alluvial soil material)	Not Rated	Moderate
MmC2, MmE2, MmE3, MmF2	Miramar course sandy loam	Low/Moderate	Moderate
TeC2, TeD2, TeE2	Tierra loam	Moderate	Moderate
WnA	Watsonville loam	Moderate	Moderate

Source: NRCS, 2011.

## Seismicity

### Active Faults

According to the Alquist-Priolo Act, active faults are defined as those that have shown seismic activity within the past 11,000 years, which are classified as Holocene faults by the United States Geological Survey (USGS) (CGS, 2007). The USGS definition, adopted by the California Geological Survey (CGS), defines active faults as faults showing signs of activity up to the beginning of the Quaternary age (1.6 million years ago). The San Gregorio fault zone is a major fault which transects the vicinity of the project site. This late-Holocene active dextral slip fault is believed to be capable of producing a magnitude seven earthquake and is located directly underneath the project site. The Pilarcitos fault zone is part of the San Gregorio fault system and is located approximately 3.7 miles east of the project site. There is also the Serra fault zone, which is approximately 6.5 miles from the project site. The northwest-striking front thrust Serra fault zone is part of the San Andreas fault system, which spans approximately 810 miles along the coast of California (CGS, 1997).

### Landslides

Areas susceptible to landslides are comprised of weak soils on sloping terrain. Landslides can be induced by weather, such as heavy rains, or strong seismic shaking events. The project site area contains a variety of slopes (0 to 75 percent slopes) and is susceptible to landslides. The hillside along the east side of the project site is comprised of steeper slopes and has a higher susceptibility to landslides.

The two stream courses and watersheds are within a geologic formation dominated by granitic soils. Based on a paper prepared by Balance HydroLogics, Inc., there are three basic watershed types along the San Mateo Coast: Granitic; cauck; and normal coastal stream

watersheds. These are based on the geologic formation of the watersheds. The proposed project site is within a granitic-dominated geologic watershed area<sup>7</sup>.

**Impact Discussion**

*Question A*

Although the project site lies directly within an Alquist-Priolo Special Studies Zone, the proposed project does not include the construction of human occupied structures and a majority of the proposed infrastructure developments would be located underground. Therefore, impacts from geologic hazards such as landslides or ground failures would be less than significant.

*Questions B-E*

The project site is located in an area which naturally contains areas of highly erodible granitic soils. Dredging would occur as part of the proposed project in order to remediate the natural effects of silt and sedimentation flows into Denniston Reservoir. The reservoir and pipelines are located in areas of minimal slopes. Construction of the new pipeline would require one time clearing of vegetation, trench excavation, pipeline installation, backfill and compaction, and re-grading where necessary. Excavated materials that cannot be utilized for backfill would be transported offsite to appropriate disposal facilities. Access to onsite trenches would be restricted at the end of each workday through the use of steel plate coverings, backfill, or barricades. Development of Project components is likely to result in some erosion; however, the Project is designed to mitigate naturally occurring erosion and is not expected to naturally increase ongoing erosion. A Stormwater Pollution Prevention Plan (SWPPP) would be filed with the RWQCB, as required, to mitigate any impacts from erosion during the construction phase of the project. Therefore impacts from erosion would be less than significant.

The majority of the pipeline would be constructed in or near the roadway of an existing unpaved road and the proposed augmented alignment is similar to that of the previously used CCWD pipeline. The portion of the pipeline from the San Vicente Creek POD to the Upper San Vicente Reservoir would replace an existing pipeline. The proposed project does not include features that would place people or structures at risk to expansive soils. The proposed project does not include septic tanks or wastewater disposal systems. With regards to soil erosion, lateral spreading, landslides, expansive soils, and wastewater disposal options, less than significant impacts would occur as a result of the proposed project.

*Findings*

Potential impacts to geology and soils as a result of the proposed project are less than significant. This resource has been adequately addressed within this document and no additional discussion is proposed in the EIR.

<b>7. Greenhouse Gas Emissions.</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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***Environmental Setting***

**Climate Change**

Climate change is a global phenomenon attributable to the sum of all human activities and natural processes. The Governor’s Office of Planning and Research recommends quantification of greenhouse gas (GHG) emissions, assessment of the significance of any impact on climate change, and identification of mitigation or alternatives that would reduce GHG emissions.

Climate change has the potential to reduce the snow packs in the Sierra Nevada Mountains, cause the sea level to rise, and increase the intensity of wildfires and storms.

***Regulatory Framework***

The following regulatory background gives context to the issues of climate change and importance to reducing GHG in California:

Assembly Bill 32

Signed by the California State Governor on September 27, 2006, Assemble Bill (AB) 32 codifies a key requirement of Executive Order (EO) S-3-05, specifically the requirement to reduce statewide GHG emissions to year 1990 levels by the year 2020. AB 32 tasks the California Air Resources Board (CARB) with monitoring state sources of GHGs and designing emission reduction measures to comply with the law’s emission reduction requirements.

CEQA Guidelines

January 2010 amendments to the California Environmental Quality Act (CEQA) Guidelines provide the following direction for consideration of climate change impacts in a CEQA document.

Bay Area Air Quality Management District CEQA Guidelines

The BAAQMD Board approved the current BAAQMD CEQA Guideline (Guideline) on June 2, 2010. The Guideline includes guidance on how to evaluate project-level CEQA GHG emissions from construction and operation.

***Impact Discussion***

*Questions A and B*

Construction

Currently the County of San Mateo or City of Half Moon Bay does not have a Climate Action Plan; therefore, significance will be determined in the EIR using the BAAQMD Guideline (Guideline). Construction of the Proposed Project would emit GHG from the operation of construction equipment.

Operation

The Guideline provides an operational GHG threshold of 1,100 tons of GHG emissions per year. Operational emissions will be evaluated in the EIR.

**Cumulative Impacts**

The proposed project would create new sources of GHG emissions. This issue will be evaluated in the EIR.

**Findings**

The proposed project may result in impacts to climate change. This resource will be addressed in the EIR.

<b>8. Hazards and Hazardous Materials.</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Environmental Setting**

A regulatory agency database search was conducted for the project area to identify sites that store, treat, and/or generate hazardous materials, sites with open environmental cases with ongoing monitoring and/or remedial activities, sites that have had a documented release of

hazardous materials, and sites that have existing contamination. The project site and adjacent parcels were not listed on any agency lists.

A site reconnaissance of the project site was conducted by AES staff on June 14, 2011 to determine if any Recognized Environmental Conditions (RECs) exist. RECs refer to the presence or likely presence of conditions on a property that indicate an existing release, a past release, or a material threat of release of any hazardous substances or petroleum products on the property or into the ground, groundwater, or surface water of the property. No RECs were observed.

The nearest school is the Farallon View Elementary School in Montara located 1.1 miles northwest of the project site. The closest airport is the Half Moon Bay airport located 0.4 miles west of the project alignment.

### ***Impact Discussion***

#### *Questions A and B*

During grading and construction it is anticipated that limited quantities of miscellaneous hazardous substances, such as gasoline, diesel fuel, and hydraulic fluid, would be stored at a designated location along the construction alignment. With the implementation of standard precautions during construction, impacts associated with hazardous materials handling during construction would be less than significant.

#### *Question C*

The closest school facility is the Farallon View Elementary School, located in Montara approximately 1.1 miles northwest of the northern portion of the project pipeline. The proposed project would not result in hazardous emissions or the utilization of hazardous or acutely hazardous materials, substances, or waste within a one-quarter mile of an existing or proposed school. No impact would occur.

#### *Question D*

The project site is not listed on the Cortese list (compiled pursuant to Government Code Section 65962.5). No impact would occur.

#### *Questions E and F*

The nearest airport to the proposed project is the Half Moon Bay Airport located approximately 0.4 miles south of the project area. The project area is not located within the flight path of planes landing and taking off from the Half Moon Bay Airport or within the San Mateo Airport Overlay District. There are no private airstrips in the project vicinity. No impact would occur.

#### *Question G*

During construction of the proposed project, limited project-related construction traffic would occur along the gravel roadway in the immediate vicinity of the project alignment. The construction of the water conveyance system would create a minimal increase in construction traffic, as discussed in the traffic section below, however it would not prevent the implementation of an emergency response plan. Impacts would be less than significant.

#### *Question H*

Equipment used during grading and construction may create sparks, which could ignite dry grass on the project site. During construction, the use of power tools and acetylene torches

may also increase the risk of fire hazard. Standard construction safety precautions would be implemented to avoid significant impacts.

*Findings*

Impacts to hazardous materials as a result of the project are less than significant. This resource will not be addressed further in the EIR.

<b>9. Hydrology and Water Quality.</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site, including through alteration of the course of a stream or river, or substantially increase the rate or volume of surface runoff in a manner that would:				
i) result in flooding on- or off-site	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) create or contribute runoff water that would exceed the capacity of existing or planned stormwater discharge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) provide substantial additional sources of polluted runoff	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv) result in substantial erosion or siltation on- or off-site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Otherwise substantially degrade water quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Place housing or other structures, which would impede or re-direct flood flows within a 100-yr. flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Expose people or structures to a significant risk of loss, injury, or death involving flooding:				
i) as a result of the failure of a dam or levee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) from inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Would the change in the water volume and/or the pattern of seasonal flows in the affected watercourse result in:				
i) a significant cumulative reduction in the water supply downstream of the diversion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ii)	a significant reduction in water supply, either on an annual or seasonal basis, to senior water right holders downstream of the diversion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii)	a significant reduction in the available aquatic habitat or riparian habitat for native species of plants and animals?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv)	a significant change in seasonal water temperatures due to changes in the patterns of water flow in the stream?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v)	a substantial increase or threat from invasive, non-native plants and wildlife	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### ***Environmental Setting***

The proposed project includes surface water diversions from two coastal sub-watershed basins located along the western slopes of the Montara Mountains, within western San Mateo County. The subject streams, San Vicente Creek and Denniston Creek, are located within USGS Hydrologic Unit Code #180500006; and within the San Francisco Bay hydrologic region (hr), San Mateo hydrologic unit (hu), San Mateo Coastal hydrologic area (ha), Pacifica super planning watershed (spws), and the Denniston Creek planning watershed (pws). These basins are located within a moderately stable coastal setting dominated by granitic geology. As such, the benthos of these two streams is composed predominantly of decomposing granitic parent material and finer sediments attributed to natural weathering processes. Hillslope landslides and stream bank sloughing are common within these geologically active watersheds. The mean annual precipitation in the upper watershed of these basins is approximately 39 inches at 1,600 feet amsl while the PODs receive 30 inches of mean annual precipitation at 400 feet amsl. Due to the granitic composition, and inherently porous nature (e.g. high rate of infiltration) of these watershed basins, stream stage and discharge is generally regulated by a high permeability which, consequently, maintains a high water table yielding a relatively stable hydrograph even during heavy precipitation events.

### ***Impact Discussion***

#### ***Questions A-G***

Permit 15882 allows for the direct diversion of up to four cubic feet per second (cfs) from January 1 to December 31 of each year from existing, permitted PODs in San Vicente Creek and Denniston Creek. The permit provides that the quantity diverted from either San Vicente Creek or Denniston Creek shall not exceed 2 cfs. If the SWRCB grants the petition for extension of time for water right Permit 15882 (Application 22860), CCWD would have until December 31, 2016 to complete construction of the proposed water distribution system improvements and allow for full beneficial use of currently approved diversions under Permit 15882. As part of the operations of the Denniston Creek diversion, expansion of the existing program for sediment removal from Denniston Reservoir would also be sought.

The proposed project would not discharge waste and would not impact waste discharge requirements. The proposed project could impact water quality standards during the development of the POD within San Vicente Creek. Groundwater supplies could be impacted with the diversion of water from San Vicente Creek and Dennison Creek which partially recharges the groundwater in the area. Construction on the project site may impact drainage patterns, stormwater discharge, and contribution of polluted runoff, erosion or siltation patterns, and water quality. Impacts to Denniston Creek could occur with the dredging maintenance program of Denniston Reservoir. While the project site is within the tsunami zone, all proposed

structures would be primarily within stream channels and underground and would not put people at risk due to tsunamis or mudflows.

**Findings**

The project would consist of a diversion of water from Denniston Creek and San Vicente Creek which could alter the water volume and pattern of seasonal flow in these surface water bodies. This represents a potentially significant impact. A detailed analysis and discussion of these potential impacts will be provided in the EIR.

<b>10. Land Use and Planning.</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Environmental Setting**

The project site is located in San Mateo County and is designated as Rural Land Use under the San Mateo County General Plan Land Use Element<sup>8</sup>. Permitted land uses within the Rural Land Use category include:

1. Very-Low Density Residential;
2. Institutional;
3. General Open Space;
4. Public Recreational;
5. Private Recreational;
6. Agriculture;
7. Timber Production; and
8. Solid Waste Disposal Facilities.

The County Zoning Ordinance further designates the areas that comprise the project site as Agriculture and Private Recreation.

The proposed project is located within the San Mateo County Local Coastal Program (LCP). The San Mateo LCP is a planning tool used by local government in order to 1) protect and expand public access to the ocean and recreational activities; 2) protect, enhance, and restore environmentally sensitive habitat, 3) protect agricultural lands and commercial fisheries, and 4) limit new housing and development in order to avoid urban sprawl. San Mateo LCP currently limits the growth of housing and new developments to 125 units per year.



## ***Impact Discussion***

### *Question A*

The project site is currently zoned for agricultural and private recreational use. Implementation of the proposed project would not change the land use designations. The Proposed Project would not result in the development of a physical barrier that would divide an established community. No impact would occur.

### *Question B*

The LCP requires a Coastal Development Permit from any public utility, government agency or special district wishing to undertake any development in the Coastal Zone. The CCWD would be required to obtain a Coastal Development Permit from the County for construction of the proposed project and would therefore be in compliance with the LCP. Additionally, the proposed project would not conflict with the LCP because no new housing or developments requiring connection to municipal utility systems would be constructed. The proposed project develops local water sources and would not conflict with the current LCP restrictions on housing because the current growth restriction of 125 units per year would remain in place. The proposed project would not alter public access to the ocean or recreational activities, agricultural land and commercial fisheries, or the designated agricultural and private recreational land uses.

The proposed project would include construction of a permanent diversion within San Vicente Creek which is within environmentally sensitive habitat as classified by the San Mateo LCP. The LCP specifies that permitted uses within riparian corridors include necessary water supply projects; therefore, the construction of the diversion would be consistent with the LCP. Furthermore, there are potential wetlands located along the proposed pipeline route; wetlands are considered environmentally sensitive habitat under the San Mateo LCP.<sup>9</sup> The proposed project would minimize impacts to potential wetlands by designing the final pipeline route to avoid them, as well as by obtaining a Coastal Development Permit, and would therefore be consistent with the LCP.

The proposed project also includes an expanded dredging maintenance regime at Denniston Reservoir, which is an environmentally sensitive habitat and contains critical habitat for the California red-legged frog, a federally-threatened species. The augmented dredging, like the more limited dredging conducted by the CCWD today, would be conducted under the guidance of DFG consistent with the long term maintenance agreement, which would include a habitat enhancement component. The dredging would remove dense vegetation from Denniston Reservoir and the area just upstream along Denniston Creek, thereby increasing the amount of suitable habitat for the California red-legged frog. The LCP specifies that permitted development within sensitive habitats comply with USFWS and DFG regulations; therefore, the proposed project would be consistent with the LCP.

### *Question C*

The project site and the area in the vicinity of the project site does not include lands under the protection of any habitat conservation plans or natural community conservation plans. The project would not have the potential to conflict with any existing habitat conservation plans or natural community conservation plans; therefore, no impact would occur.

### *Findings*

The proposed project would be consistent with the San Mateo County General Plan and LCP. There are no habitat conservation or natural community conservation plans covering this area. Impacts to land use and planning would be less than significant. This resource will not be addressed further in the EIR.

<b>11. Mineral Resources.</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Environmental Setting**

The State of California classifies mineral resources throughout the State and has designated certain mineral bearing areas as being of regional significance. Local agencies must adopt mineral management policies that recognize mineral information provided by the State, assist in the management of land use that affects areas of Statewide and regional significance, and emphasize the conservation and development of identified mineral deposits<sup>10</sup>.

Various minerals are present in San Mateo County, including chromite, clay, expandable shale, mercury, and various sands and stones. Onshore oil and gas also exist in three main fields throughout the County. San Mateo’s Resource Management District (RMD) was created to meet the County’s need for open space and conservation, including the conservation of mineral resources. According to the San Mateo County General Plan Zoning Map, the project site is not located in an RMD and no mineral resources are located on or near the project site (San Mateo County, 1986).

**Impact Discussion**

*Questions A and B*

No mineral resources are located near the project site as mapped in the San Mateo County General Plan. No impact would occur.

*Findings*

No impacts would occur to mineral resources as a result of the proposed project. This resource will not be further addressed in the EIR.

<b>12. Noise.</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing in or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f)	For a project within the vicinity of a private airstrip, would the project expose people residing in or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Environmental Setting**

Some land uses are considered more sensitive to noise than others due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, and parks and other outdoor recreation areas generally are more sensitive to noise than commercial and industrial land uses. A sensitive receptor is defined as any living entity or aggregate of entities whose comfort, health, or well being could be impaired or endangered by the existence of noise.

The land surrounding the project site is primarily agricultural with some residential uses. The nearest sensitive receptors are residences located approximately 1,700 feet southeast of the southern portion of the project site.

**Impact Discussion**

*Questions A-D*

Construction

Construction noise from the project site would result from the use of trenching equipment and haul trucks. Noise from construction activities has the potential to be approximately 85 decibels within 50 feet of the activity. Construction noise generally attenuates (lessens) at a rate of 4.5 to 6 db per doubling of distance (Caltrans, 2009). Given the topography and soft ground cover of the area a 5.5 dB attenuation value for construction noise is considered appropriate.

Construction of the proposed project would result in temporary noise levels at the nearest noise sensitive receptors of approximately 57.5 CNEL, which is equal to the San Mateo County threshold for noise. The construction equipment used to develop the proposed project are not impact devices (i.e. pile driver, vibration compactor, etc); therefore, no vibration impacts would occur. The proposed project would not expose persons to, or generate noise levels, which temporarily or permanently exceed standards established in the local general plan or noise ordinance. The proposed project would result in a less than significant impact to the ambient noise environment during construction.

Operation

Because the operation activities associated with the proposed dredging of Denniston Reservoir would be of the same type and negligibly greater in quantity as the operation activities currently

underway at the same site, there would be no increase in the existing ambient noise level. In addition, the maintenance of the new, permanent diversion on San Vicente Creek would require less maintenance, reducing operational activities currently associated with the existing temporary diversion. There would be no impact to the noise environment during the operation of the proposed project.

*Questions E and F*

The project site is not located within the vicinity of a private airstrip; however, the proposed project is located approximately 0.4 miles north of the Half Moon Bay Airport. The proposed project would not place sensitive receptors within the noise zone of the airport.

*Findings*

Impacts from noise as a result of the proposed project are less than significant. This resource will not be addressed further in the EIR.

<b>13. Population and Housing.</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Induce substantial population growth in an area either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Environmental Setting**

CCWD provides service to an area covering over 14 square miles in San Mateo County along the California coast. The CCWD service area includes the City of Half Moon Bay and unincorporated areas of San Mateo County including Miramar, Princeton by the Sea and El Granada. CCWD currently serves a population of approximately 20,000.

The proposed project would enable CCWD to better utilize local water resources, therefore reducing future reliance on imported water from the SFPUC. This project does not change the total anticipated water demand from that which is already authorized and anticipated under the LCP of the County and City.

The proposed project site is within rural and agricultural land use zoning and there are several residences in the vicinity to the northwest and southeast. Housing density is low in this area and the general setting is rural. The proposed project would not result in the displacement of any of these residences.

**Impact Discussion**

**Question A**

The project would not involve the development of any homes or businesses and would maintain existing land uses at the project site. The proposed project involves development of new infrastructure in order to facilitate full beneficial use of the local water authorized under Permit 15882. The proposed project is not anticipated to induce population growth within the County due to the growth constraints already in place. The proposed project will increase reliance on local water supply sources which would otherwise be met through imported sources. The total anticipated demand for water does not change as a result of this project. The proposed project would allow CCWD to accommodate the water needs of existing residents as well as the anticipated future population growth already approved and anticipated within San Mateo County as discussed in the County’s General Plan, and regulated by the LCP.<sup>11</sup> Development of the Proposed Project would be consistent with all applicable General Plan and LCP policies. The full beneficial use of this local water source would reduce the need for imported water. A less than significant impact would occur.

**Questions B-C**

The proposed project would not involve the displacement of people or housing. No impacts would occur.

**Findings**

Less than significant impacts to the local population and housing would occur as a result of the proposed project. This resource has been adequately addressed within this document and it is not anticipated to be discussed further in the EIR.

<b>14. Public Services</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service rations, response times or other performance objectives for any of the public services:				
a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Environmental Setting**

Public services provided to the project area include fire protection by the Coastside Fire Protection District (District). The District operates three fire stations to provide emergency services: Fire Station 40 is located within the downtown area of the City of Half Moon Bay, Fire Station 41 is located within the unincorporated area of El Granada and Fire Station 44 is located within the Moss Beach Area of the District. The District has eighteen volunteer firefighter positions along with twenty paid positions.<sup>12</sup> On June 12, 2011, the San Mateo County Sheriff’s Office began providing all inclusive law enforcement services under contract for the City of Half Moon Bay.<sup>13</sup> Public school services within the project area are provided by the Cabrillo Unified

School District (CUSD). The CUSD consists of four elementary schools, one intermediate school, one high school, and two continuation schools.<sup>14</sup>

**Impact Discussion**

*Questions A-E*

The proposed project would not result in changes to existing land uses at the project site nor would it modify the already existing restriction on growth imposed by the LCP which governs the area. The proposed project would not generate additional demand for government facilities or services in the areas of fire protection, police protection, schools, parks or other public facilities. The proposed project would result in benefits to area fire protection services as a result of the decreased reliance on SFPUC water. Utilization of localized water sources decreases the likelihood of emergency in the event SFPUC water sources are cut off for any reason. A less than significant impact to public services would occur.

*Findings*

Impacts to public services as a result of the project would be less than significant. This resource has been adequately addressed within this document and it is not anticipated to be discussed further in the EIR.

15. Recreation.	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Environmental Setting**

San Mateo County has various types of parklands, including State, County, Regional, and neighborhood parks. In addition, the National Parks Service (NPS) maintains lands in the region, such as the Golden Gate National Recreation Area (Golden Gate NRA). The NPS is currently in the process of acquiring property adjacent to the proposed project site to be integrated into the Golden Gate NRA.

Regional recreational opportunities include fishing, camping, swimming, hiking, walking, horseback riding, and bicycling. The nearby ocean provides a major source of recreational opportunities in the vicinity of the proposed project.

**Impact Discussion**

*Questions A and B*

The proposed project would not result in changes to existing land uses at the project site. No new demand would be generated for the use of existing neighborhood and regional parks or other recreational facilities such as the Golden Gate NRA. Public access to the ocean and/or

other bodies of water currently available for public recreation in the vicinity of the proposed project site would not be impacted. The proposed project does not include recreational facilities, nor require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

*Findings*

No recreational impacts would occur as a result of the project. This resource has been adequately addressed within this document and it is not anticipated to be discussed further in the EIR.

<b>16. Transportation and Circulation.</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level-of-service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted policies regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Environmental Setting**

Several roadways are near the project site. United States Highway 1 (Pacific Coast Highway) is a major north/south oriented highway system running along the western United States. In the vicinity of the project alignment, US Highway 1 is a two-lane paved roadway. Etheldore Street is a north/south oriented rural two-lane paved collector that intersects US Highway 1 approximately 0.5 mile west of the project site. Access to the western area of the proposed project site is provided by an unpaved access road, originating at the southern terminus of Etheldore Street. The roadway currently provides access to Ember Ridge Equestrian Center

and the San Vicente Creek point of diversion. Access to the eastern area of the proposed project site is provided by an unpaved access road, originating at US-1 across from the entrance to the Half Moon Bay Airport. The unpaved road currently provides access to farming operations and Denniston Reservoir and WTP.

### ***Impact Discussion***

#### *Questions A and B*

##### Construction

Project implementation would cause a negligible increase in traffic volumes along US Highway 1, Etheldore Street, and the site access roads during construction. The increase in traffic would be minimal and over a short duration of time. Traffic would primarily increase from construction worker trips and the delivery of construction equipment and materials to and from the project site. The expected increase in traffic would take place between the hours of 7:00 A.M. and 6:00 P.M. on week days for approximately six months. The estimated increase in trips along US Highway 1, Etheldore Street, and site access roads would be less than 26 one-way trips per day, based on 10 construction workers and three material delivery trips. This is not a substantial increase and would not cause a significant modification of any level of service standard or cause inadequate emergency access. Construction parking would be minimal and would be achieved through a construction staging area on the project site; therefore, construction of the proposed project would not result in inadequate parking. Construction traffic impacts would be less than significant and would be well below existing weekend peak traffic periods. To the degree the construction workers are from the local area these impacts would be reduced further.

##### Operation

Ongoing operational activities may include routine maintenance of the pipeline, maintenance and/or possible future dredging of the diversion structure, maintenance of the pump station at San Vicente Creek, and expanded dredging maintenance at Denniston Reservoir. Operational activities would create significantly less vehicle trips per day than during the construction of the project. No significant impacts on an applicable level of service standard or inadequate emergency access would occur. Adequate parking would be provided on-site. This impact is less than significant.

#### *Question C*

The nearest airport to the proposed project is the Half Moon Bay Airport located approximately 0.5 miles west of the project area. The project area is not located within the flight path of planes landing and taking off from the Half Moon Bay Airport or within the San Mateo Airport Overlay District. Construction traffic accessing the project alignment via the Southern Site Access roadway would not impact the Half Moon Bay Airport. No impact would occur.

#### *Question D*

The Proposed Project would not change the design of existing roadways and does not include any operational features that would impact traffic or increase hazards. No impact would occur.

#### *Question E*

The Proposed Project would not introduce any uses that would generate any new or unanticipated long-term changes in traffic. Construction of the proposed project would temporarily increase traffic along haul routes, including US Highway 1, Etheldore Street, and the site access roads. Primary impacts from construction-related trucks deliveries would include



short-term and intermittent lessening of roadway capacities due to slower movements and larger turning radii of the trucks compared to passenger vehicles; however, these impacts would be negligible.

*Question F*

Construction parking would be limited to nearby unpaved roadways or within a staging area designated for construction equipment and worker parking. The proposed project would not require the development of parking spaces as the minimal amount of operational activities and maintenance do not warrant the development. There would be sufficient parking for both construction and operation of the Proposed Project. No impact would occur.

*Findings*

No significant impacts to transportation and circulation would occur as a result of the proposed project. This resource has been adequately addressed within this document and will not be addressed further in the EIR.

<b>17. Utilities and Service Systems.</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Environmental Setting**

Residences in the project area rely primarily on CCWD for their domestic water supply. Some residences rely on wells for water and private septic systems for wastewater dispersal. The

Granada Sanitary District provides sewer service and solid waste disposal for residences in the project area and vicinity.

**Impact Discussion**

*Questions A-G*

The proposed project does not involve any wastewater treatment components and wastewater would not be generated as a result of the project. No new housing or business activity other than what is anticipated in the existing LCP are anticipated as a result of this shift in water supply from imported water to local supplies for the CCWD, which is the purpose of the proposed project. There would be no impact on wastewater treatment facilities or storm water drainage facilities under this proposed project. The proposed project would not be creating or expanding water entitlements, or modifying the number of already approved and limited water connections within the CCWD, although it would complete the anticipated water delivery infrastructure to facilitate a lessening of dependence on imported water. The project would not increase solid waste or conflict with government regulations concerning the generation, handling, or disposal of solid waste.

*Findings*

No significant impacts to utilities and service systems would result from the project. This resource has been adequately addressed within this document and will not be discussed further in the EIR.

<b>18. Mandatory Findings of Significance</b>	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Impacts Discussion**

*Questions A and B*

As discussed in the preceding sections, the proposed project has a potential to degrade the quality of the environment by adversely impacting biological resources, cultural resources, air quality, and water quality and hydrology. The proposed project has a potential to result in

adverse environmental impacts. These impacts in combination with the impacts of other past, present, and future projects, could contribute to cumulatively significant effects on the environment.

*Question C*

No potentially significant adverse affects to humans have been identified.

*Findings*

Due to the potential for the proposed project to adversely impact several resource areas within the project site and vicinity, an EIR will be prepared to further analyze impacts and recommend avoidance, minimization and mitigation measures to reduce impacts. The EIR is anticipated to concentrate on the areas identified in this Initial Study as having potentially significant impacts.

## IV. INFORMATION SOURCES

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- <sup>1</sup> Western Regional Climate Center (WRCC), 2008. Western Regional Climate Center database for Half Moon Bay, California. Western Regional Climate Center, Reno, Nevada. Available: < <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca3714>>. Accessed June 16, 2011.
- <sup>2</sup> California Department of Transportation. 2007. California Scenic Highway Mapping System. December 2007. Available online at: [http://www.dot.ca.gov/hq/LandArch/scenic\\_highways/index.htm](http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm).
- <sup>3</sup> San Mateo County, 1986. General Plan. Department of Environmental Management, Planning and Building Division, San Mateo County, California. November 1986. Available online at: [http://www.sforoundtable.org/P&B/pb\\_general\\_plan.html](http://www.sforoundtable.org/P&B/pb_general_plan.html).
- <sup>4</sup> San Mateo County, 1999. Zoning Regulations. Department of Environmental Management, Planning and Building Division, San Mateo County, California. July 1999. Available online at: [www.co.sanmateo.ca.us/vgn/images/portal/cit\\_609/9441580Zregs-wp.pdf](http://www.co.sanmateo.ca.us/vgn/images/portal/cit_609/9441580Zregs-wp.pdf).
- <sup>5</sup> Sawyer, J. O., T. Keeler-Wolf, and J. Evens, 2009. *A Manual of California Vegetation, Second Edition*. California Native Plant Society. Sacramento, CA.
- <sup>6</sup> California Department of Fish and Game, 2003. RareFind 3 Version 3.0.5, California Natural Diversity Data Base. Sacramento, California. Database last updated 3/31/2011. Accessed: May 12, 2011.
- <sup>7</sup> Balance HydroLogics, Inc., 2011. Hydrological Report of the San Vicente and Denniston Creek Watersheds. San Mateo County, 2011.
- <sup>8</sup> San Mateo County, 1986. General Plan. Department of Environmental Management, Planning and Building Division, San Mateo County, California. November 1986. Available online at: [http://www.sforoundtable.org/P&B/pb\\_general\\_plan.html](http://www.sforoundtable.org/P&B/pb_general_plan.html).
- <sup>9</sup> San Mateo County, 1998. Local Coastal Program. Environmental Services Agency. San Mateo County, California. June 1998. Available online at: [http://www.co.sanmateo.ca.us/vgn/images/portal/cit\\_609/10073428lcp\\_1098.pdf](http://www.co.sanmateo.ca.us/vgn/images/portal/cit_609/10073428lcp_1098.pdf).
- <sup>10</sup> San Mateo County, 1986. San Mateo County General Plan – Mineral Resources Element, 1986. Available online at: [http://www.sforoundtable.org/P&B/pb\\_general\\_plan.html](http://www.sforoundtable.org/P&B/pb_general_plan.html). Accessed July, 2011.
- <sup>11</sup> San Mateo County, 1986. General Plan. Department of Environmental Management, Planning and Building Division, San Mateo County, California. November 1986. Available online at: [http://www.sforoundtable.org/P&B/pb\\_general\\_plan.html](http://www.sforoundtable.org/P&B/pb_general_plan.html).
- <sup>12</sup> Coastside Fire Protection District, 2011. About Us. Available online at: <http://coastsidefire.org/about>

- 
- <sup>13</sup> Half Moon Bay, 2011. Police Services. Available online at:  
[http://www.hmbcity.com/index.php?option=com\\_content&view=article&id=104&Itemid=64](http://www.hmbcity.com/index.php?option=com_content&view=article&id=104&Itemid=64)
- <sup>14</sup> Cabrillo Unified School District, 2011. Our School Websites. Available online at:  
<http://www.cabrillo.k12.ca.us/index.htm#>

# **APPENDIX B**

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SCOPING PERIOD COMMENT LETTERS

**From:** [Steve Flint](#)  
**To:** [David Dickson](#)  
**Subject:** CCWD Notice of Prep  
**Date:** Wednesday, November 23, 2011 3:08:21 PM

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Hi Dave-

I reviewed the document you sent on October 24, 2011 and only had two minor comments:

Pg. 6 – Operation and Maintenance Activities, last paragraph, 1<sup>st</sup> sentence: ...creek channel within the exi(s)ting(?) riparian...

Pg. 20 – Question A, 5<sup>th</sup> sentence: Denniston Creek below Denniston\_\_\_\_\_ (Reservoir?)

Otherwise, all looks good.

-Have a Happy Thanksgiving!



# MONTARA WATER & SANITARY DISTRICT

Serving the Communities of Montara and Moss Beach

P.O. Box 370131  
8888 Cabrillo Highway  
Montara, CA 94037-0131

Tel: (650) 728-3545

Fax: (650) 728-8556

E-mail: [mwsd@coastside.net](mailto:mwsd@coastside.net)

Visit Our Web Site: <http://www.mwsd.montara.com>

**RECEIVED**

November 16, 2011

NOV 23 2011

COASTSIDE COUNTY  
WATER DISTRICT

David R. Dickson, General Manager  
Coastside County Water District  
766 Main Street  
Half Moon Bay, California 94019

**RE: Coastside County Water District's Denniston/San Vicente Water Supply Project Notice of Preparation of an Environmental Impact Report**

Dear David,

Thank you for the opportunity to comment on the scope and content of the EIR to be prepared for the above-referenced project. I generally agree with the finding of the Initial Study that the proposed project may have a significant effect on the environment.

The project would result in increased diversion and diminished flows in Denniston and San Vicente Creek. Both Creeks run through portions of the highly vulnerable airport aquifer that is currently used for water production by Coastside County Water District, Pillar Ridge Mobile Home Park, and Montara Water and Sanitary District, and a number of smaller users. The interconnection between Denniston Creek and San Vicente Creek and the Airport Aquifer has been well documented (see attachment). MWSD's main concerns about the proposed project are the potential depletion of groundwater levels especially during droughts, changes to the water quality, or other hydrological impacts to downstream users resulting from the project.



Therefore, we asked Balance Hydrologic to review the Initial Study from Analytical Environmental Services and to prepare a memorandum summarizing the District's position regarding potential hydrological impacts. The memorandum is attached to this letter and accurately reflects the District's position and concerns.

In addition, I have the following comments:

**Aesthetics:**

*Another project component includes the dredging of Denniston Reservoir for long-term maintenance of sedimentation. The accumulation of sediment at the reservoir has resulted in a willow and cattail-dominated stream channel. Dredging activities would remove some of this accumulated sediment and associated vegetation, visually opening the stream channel and creating a larger open water area at Denniston Reservoir. This would improve the aesthetic nature of the reservoir and associated stream channel as it would recreate conditions at the time the reservoir was constructed. The dredged spoils would be deposited in two disposal sites north of Denniston Reservoir adjacent to a farm road (refer to Figure 3). When deposited, the dredged spoils would be spread out across the sites, effectively preventing the spoils from being seen even from the farm road. The two disposal sites are also surrounded by eucalyptus trees further shielding the dredged spoils from view."*

I would like to note that the dredged material must be adequately sampled to ensure that no hazardous materials are contained prior to land application.

**Utilities and Service Systems:**

*Granada Sanitary District provides sewer service and solid waste disposal for residences in the project area and vicinity.*

*Impact Discussion; Questions A-G*

*The proposed project does not involve any wastewater treatment components and wastewater would not be generated as a result of the project. No new housing or business activity other than what is anticipated in the existing LCP are anticipated as a result of this shift in water supply from imported water to local supplies for the CCWD, which is the purpose of the proposed project. There would be no impact on wastewater treatment facilities or storm water drainage facilities under this proposed project. The proposed project would not be creating or expanding water entitlements, or modifying the number of already approved and limited water*

*connections within the CCWD, although it would complete the anticipated water delivery infrastructure to facilitate a lessening of dependence on imported water. The project would not increase solid waste or conflict with government regulations concerning the generation, handling, or disposal of solid waste.*

*Findings*

*No significant impacts to utilities and service systems would result from the project. This resource has been adequately addressed within this document and will not be discussed further in the EIR."*

This statement is incorrect. Montara Water and Sanitary District provides solid waste disposal in the project area and vicinity.

Thank you again for the opportunity to comment. We request that we be sent copies of the Draft EIR and other supporting documents, including revisions to the Project's Description.

Sincerely,


A handwritten signature in black ink, appearing to read 'Clemens Heldmaier', with a long horizontal flourish extending to the right.

Clemens Heldmaier  
General Manager

Attachment

Memorandum

To: Clemens Heldmaier, MWSD General Manager

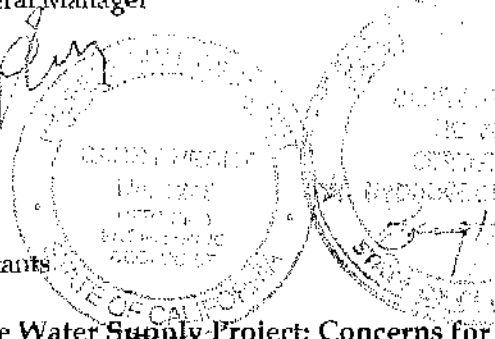
From: Mark Woyschner 

Reviewed by: Barry Hecht, CHg

Date: November 15, 2011

Cc: Tanya Yurovsky, PE, SRT Consultants

Subject: **CCWD Denniston/San Vicente Water Supply Project: Concerns for MWSD and Recommendations**



The Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the Denniston/San Vicente Water Supply Project, prepared by Coastside County Water District (CCWD) and dated October 19, 2011 has been received by Montara Water and Sanitary District (MWSD) and forwarded Balance Hydrologics (Balance) for review. You requested an initial assessment of the proposed project from the perspective of potential impacts to groundwater supplies for MWSD and for the Pillar Ridge Manufactured Home Community (PRMHC). MWSD has the opportunity to participate in the California Environmental Quality Act (CEQA) process with a response to the NOP that may include a list of concerns, questions, and requests for the CEQA team.

Partially as an outgrowth of our stream gaging and groundwater monitoring during the County funded Midcoast Groundwater Study Phase III and previous gaging of Denniston Creek for the Resource Conservation District (RCD), Balance has continued gaging of flows on Denniston Creek and San Vicente Creek and continued monitoring groundwater levels in CCWD wells. Two years of dry-season data and one high-flow season have been collected during water years 2010 and 2011. These data should appear in the DEIR; earlier data can be found in the Midcoast Groundwater Study Phase III report (Woyschner and others, 2010).

**Concerns and Potential Project Impacts**

The initial study states that CCWD holds water-right permit 15882, which authorizes up to 2 cubic feet per second (cfs) diversion from both Denniston Creek and San Vicente Creek (4 cfs total) from January 1 through December 31 of each year. The permit, issued in 1969, specified a 1971 deadline for completing proposed improvements and putting all water to beneficial use by 1972. In 1973, CCWD completed the Denniston Project and has reportedly since diverted up to 1.9 cfs. CCWD, however, did not implement an improvement project on San Vicente Creek and has only temporarily diverted water for some domestic use. CCWD has reportedly since filed petitions for extension of time to the State Water Rights Board (SWRB), and there are no active protests to the current petition, filed in June 2004. The proposed project includes water supply improvements on both Denniston Creek and San Vicente Creek to enable the full beneficial use of their water-right permit.

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**Memorandum**

The Airport Aquifer is the largest groundwater basin in the MWSD service area. MWSD operates 3 water supply wells in the Airport Aquifer, and PRMHC operates 4 (currently 1 is currently inactive). MWSD supplements water to PRMHC when their wells are incapable of meeting demand or when the quality of their well water is unacceptable. MWSD also owns property and a well on Oak Avenue in Moss Beach adjacent to San Vicente Creek, though currently not permitted for use. MWSD, in part, manages their withdrawals from the Airport Aquifer for drought-year storage; meaning, they rely on the aquifer for water during multi-year droughts. MWSD has, in recent years, scaled back withdrawals from their wells in the Airport Aquifer, which has contributed to higher groundwater elevations during the 2007 through 2009 drought (relative to the more severe 1987 through 1992 drought), and thus more groundwater was retained in storage, as documented in the Midcoast Groundwater Study Phase III report. If the drought would have persisted, then this retained groundwater would have been of particular value to MWSD for water supply.

The Airport Aquifer has young groundwater, dated less than 10 years, and classified as a "highly vulnerable area" (Carle and others, 2010). This high rate of groundwater replenishment is illustrated in the groundwater elevations within the aquifer, which demonstrate wide swings in both seasonal fluctuation and the drought-wet year cycle (see figures in Appendix C and E of Midcoast Groundwater Study Phase III report). The California Department of Water Resources noted this characteristic of the Airport Aquifer in their Montara Water Supply Study (June 1999).

It is well established that Denniston Creek and San Vicente Creek provide significant recharge to underlying alluvium and terrace deposits at their canyon mouth and across the coastal terrace. Groundwater recharge is especially important during the dry season and during droughts to support groundwater levels (see discussions in the Midcoast Groundwater Study Phase III report). Denniston Creek, specifically, provides recharge to the Airport Aquifer, while San Vicente Creek recharges the northern-most part of the Airport Aquifer and portions of Lower Moss Beach. In addition, Cabrillo Farms diverts water from San Vicente Creek to storage ponds overlying the Airport Aquifer upgradient of MWSD water supply wells, from which leakage reasonably provides significant recharge to the aquifer.

Flows in Denniston Creek and San Vicente Creek exceed 2 cfs only during the wet season. Denniston Creek, the larger of the two watersheds at 3.83 square miles, receded to a minimum daily flow of 0.02 cfs below Capistrano Road during water year 2008 (the second consecutive drought year), and receded to zero flow during 2009 (the third consecutive drought year). San Vicente Creek at Fitzgerald Marine Reserve had zero flow during October through December of 2009.

Pillar Point Marsh, a regionally-significant wetland, given great importance in the County Local Coastal Plan, and part of San Mateo County's Fitzgerald Marine Reserve, is located on the Airport Aquifer at the mouth of Denniston Creek. Due to a growing dependency on the Airport Aquifer since 1976 and the potential impacts to the health of Pillar Point Marsh, in 1994 the California Coastal Commission adopted a limit of 459 acre-feet per year on groundwater

**Memorandum**

extractions. The Coastal Commission criteria did not address effects of how increased diversion might reduce recharge in setting this number.

In addition to surface-water diversions, CCWD also pumps groundwater from several wells along Denniston Creek. In order to regulate inflow to their treatment plant, groundwater withdrawals supplement surface-water diversions as flows recede in the dry season until inflows are too low. An implied potential effect of the proposed project could be additional groundwater pumping during the dry season, and cumulatively more groundwater pumped from the aquifer.

The Airport Aquifer is not without groundwater quality concerns that may be aggravated with reduced groundwater recharge or a deeper fluctuation in groundwater elevations. MWSD production wells in the Airport Aquifer have shown elevated levels of nitrate at concentrations, exceeding the Title 22 MCL and requiring treatment. The PRMHC wells have elevated levels of iron and manganese and one well requires an air stripper to treat for volatile organic carbons. TCP (1,2,3-Trichloropropane) is also present in the Airport Aquifer. TCP is a DNAPL (Dense Nonaqueous Phase Liquid), denser than water and thus tends to settle lower in the aquifer. And finally, elevated levels of naturally occurring chloride have been observed in places along the faults.

**Requests for the CEQA Team**

MWSD logically agrees with the findings of Sections 9b and 9d of the initial study that the project poses a potentially significant impact: a) for substantially depleting groundwater supplies or interfering substantially with groundwater recharge, and b) for substantially degrading groundwater quality. We recommend advising the CEQA team of your concern of potential impacts by the proposed project to groundwater recharge and to the groundwater supplying the MWSD and PRMHC production wells. We pose the following questions for the CEQA process:

- Will the proposed project significantly impact the groundwater source for MWSD and PRMHC?
- Will the proposed project significantly impact stream and riparian habitat, and
- Will the health of Pillar Point Marsh be affected by the proposed project?

A reasonable approach to answer these questions might include:

- A comprehensive analysis of potential project effects to groundwater recharge, groundwater elevations, groundwater contours and flow path, including conditions during the wet season, dry season, normal year, wet year, and a multi-year drought. This analysis might include a comprehensive water balance similar to the water balances conducted for the El Granada, Miramar, and Moss Beach sub-basins for the Midcoast Groundwater Study Phase II (Clark and others, 2008).

Memorandum

- An analysis of the potential project effects to groundwater pumping by CCWD from their wells in the Airport Aquifer, with regard for the adopted 1994 California Coastal Commission limit of 459 acre-feet per year on groundwater extractions.
- Quantifying potential cumulative impacts to MWSD wells and PRMHC wells from a water quality and groundwater availability perspective.

**Some Potential Mitigation Ideas**

Thinking ahead, MWSD might consider collaborating with the CEQA team early in the CEQA process to develop mitigation ideas for the proposed project. The following incomplete list includes some potential mitigation ideas initially proposed to begin an open discussion with CCWD:

- It is clear that there is not enough flow in either Denniston Creek or San Vicente Creek for CCWD to divert 2 cfs year round. Diversion and well pumping protocols in conjunction with fish habitat needs and sustaining natural groundwater recharge from the creeks should be proposed in the DEIR.
- The diversion protocols might include an adaptive management strategy, potentially requiring groundwater monitoring, stream gaging, transparency of diversion and well pumping records, collaboration with basin stakeholders, and regular stakeholder meetings that includes a mediation process. Groundwater monitoring should include a strategy to assess the water quality with regard to known contaminants, in addition to water-level monitoring.
- It seems apparent that the need to adopt a groundwater management plan (GMP) for the Airport Aquifer has grown in recent years. A GMP could potentially be beneficial for all stakeholders, and perhaps a requirement to partner with stakeholders to develop a groundwater management plan can be an outgrowth of the CEQA process.
- In addition to recharge from the creeks, it is reasonable to conclude that the Airport Aquifer benefits from recharge from the San Vicente ponds, potentially to a significant level, and especially during drought years. The recharge may contribute meaningfully to the high groundwater and artesian conditions observed on the west side of the basin along Seal Cove fault. We, however, know of no documented information as to the construction of the ponds, the condition of their bed, estimated percolation rates, water quality, nor how water is managed in them. There is an opportunity here to document the effect of the ponds on groundwater recharge, and to develop ideas as to how to improve groundwater recharge (perhaps for example, by managing water levels or by dredging or periodically scarifying the bed of the lower pond).
- MWSD had developed and implemented a hydrologic and riparian monitoring program for Montara Creek to assess potential effects from streamflow diversion and well

**Memorandum**

pumping. Elements of the program were based on research and decades of adaptive management by the Monterey Peninsula Water Management District related to well pumping near the Carmel River. MWSD's monitoring plan may be a good starting point when considering monitoring ideas for the CCWD proposed project.

**References Cited**

- California Department of Water Resources, 1999, Montara water supply study for Montara Sanitary District, San Mateo County, California: California Department of Water Resources, Central District staff report, June 1999, 57 p.
- Carle, S.F., Moran, J.E., and Esser, B.K., 2010, California GAMA special study: groundwater age simulation and deconvolution methods for interpretation of  $^3\text{H}$ - $^3\text{He}$  data: California State Water Resources Control Board GAMA Special Studies Task 9.3: Combining groundwater age and introduced tracer results to determine contaminant transport rates to drinking water wells, March, 2010, 48 p. [http://www.swrcb.ca.gov/gama/docs/finl\\_gwage.pdf](http://www.swrcb.ca.gov/gama/docs/finl_gwage.pdf)
- Clark, M., Johnson, C.S., Almestad, C., and Walker, J.P., 2008, Midcoast groundwater study, phase II, San Mateo County, California: Kleinfelder, Inc. consulting report prepared for the San Mateo County Planning Services Department, 83 p., 20 plates + 2 appendices.
- Woyshner, M., Hecht, B., Parke, J., and Baggett, T, 2010, Midcoast groundwater study phase III, San Mateo County, California: Balance Hydrologics, Inc. consulting report prepared for County of San Mateo Planning and Building Department, 34 p. plus 6 tables, 23 figures, and 5 appendices. <http://www.balancehydro.com/reports.php>

**NATIVE AMERICAN HERITAGE COMMISSION**

915 CAPITOL MALL, ROOM 364  
 SACRAMENTO, CA 95814  
 (916) 653-4082  
 (916) 657-5390 - Fax



November 8, 2011

**RECEIVED**

NOV 10 2011

COASTSIDE COUNTY  
WATER DISTRICT

David R. Dickson  
 Coastside County Water District  
 766 Main Street  
 Half Moon Bay, CA 94019

RE: SCH# 2011102038 Denniston/San Vicente Water Supply Project; San Mateo County.

Dear Mr. Dickson:

The Native American Heritage Commission has reviewed the Notice of Preparation (NOP) regarding the above referenced project. The California Environmental Quality Act (CEQA) states that any project that causes a substantial adverse change in the significance of an historical resource, which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA guidelines 15064(b)). To adequately comply with this provision and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required:

- ✓ Contact the appropriate Information Center for a record search to determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.
- ✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
- ✓ Contact the Native American Heritage Commission for:
  - A Sacred Lands File Check. **Sacred Lands File check completed, no sites indicated.**
  - A list of appropriate Native American Contacts for consultation concerning the project site and to assist in the mitigation measures. **Native American Contacts List attached**
- ✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
  - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Sincerely,

Katy Sanchez  
 Program Analyst  
 (916) 653-4040

cc: State Clearinghouse



**Native American Contact List**  
San Mateo County  
November 8, 2011

**RECEIVED**

NOV 10 2011

Indian Canyon Mutsun Band of Costanoan  
Ann Marie Sayers, Chairperson  
P.O. Box 28  
Hollister , CA 95024  
ams@indiancanyon.org  
831-637-4238

Ohlone/Costanoan

Amah/Mutsun Tribal Band  
Joseph Mondragon, Tribal Administrator  
882 Bay view Avenue  
Pacific Grove, CA 94062  
831-372-9015  
831-372-7078 - fax

Ohlone/Costanoan

COASTSIDE COUNTY  
WATER DISTRICT

Jakki Kehl  
720 North 2nd Street  
Patterson , CA 95363  
jakki@bigvalley.net  
(209) 892-1060

Ohlone/Costanoan

Amah/Mutsun Tribal Band  
Melvin Ketchum III, Environmental Coordinator  
7273 Rosanna Street  
Gilroy , CA 95020  
408-842-3220

Ohlone/Costanoan

Trina Marine Ruano Family  
Ramona Garibay, Representative  
30940 Watkins Street  
Union City , CA 94587  
soaprootmo@msn.com  
510-972-0645-home  
209-688-4753-cell

Ohlone/Costanoan

Bay Miwok

Plains Miwok

Patwin

Muwekma Ohlone Indian Tribe of the SF Bay Area  
Rosemary Cambra, Chairperson  
2574 Seaboard Avenue  
San Jose , CA 95131  
muvekma@muvekma.org  
408-205-9714  
510-581-5194

Ohlone / Costanoan

Amah/Mutsun Tribal Band  
Irene Zwielerlein, Chairperson  
789 Canada Road  
Woodside , CA 94062  
amah\_mutsun@yahoo.com  
(650) 851-7747 - Home  
(650) 851-7489 - Fax

Ohlone/Costanoan

Amah/Mutsun Tribal Band  
Jean-Marie Feyling  
19350 Hunter Court  
Redding , CA 96003  
jmfgmc@sbcglobal.net  
530-243-1633

Ohlone/Costanoan

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH# 2011102038 Denniston/San Vicente Water Supply Project; San Mateo County.

**Native American Contact List**  
San Mateo County  
November 8, 2011

**RECEIVED**

NOV 10 2011

COASTSIDE COUNTY  
WATER DISTRICT

The Ohlone Indian Tribe  
Andrew Galvan  
PO Box 3152  
Fremont, CA 94539  
chochenyo@AOL.com  
(510) 882-0527 - Cell  
(510) 687-9393 - Fax

Ohlone/Costanoan  
Bay Miwok  
Plains Miwok  
Patwin

Linda G. Yamane  
1585 Mira Mar Ave  
Seaside, CA 93955  
rumsien123@yahoo.com  
831-394-5915

Ohlone/Costanoan

**This list is current only as of the date of this document.**

**Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.**

**This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH# 2011102038 Denniston/San Vicente Water Supply Project; San Mateo County.**



## United States Department of the Interior

NATIONAL PARK SERVICE

Golden Gate National Recreation Area  
Fort Mason, San Francisco, California 94123

**RECEIVED**

L76 (GOGA-PLAN)

NOV 22 2011

NOV 28 2011

COASTSIDE COUNTY  
WATER DISTRICT

Mr. David R. Dickson, General Manager  
Coastside County Water District  
766 Main Street  
Half Moon Bay, CA 94019

Re: NPS Scoping Comments Denniston/San Vicente Water Supply Project Initial Study

Dear Mr. Dickson:

Golden Gate National Recreation Area (GGNRA) has reviewed Coastside County Water Districts (CCWD) Denniston/San Vicente Water Supply Project Initial Study. The National Park Service (NPS) has interest in this project because the proposed actions would occur on, or directly adjacent to, lands soon to be owned and managed by GGNRA and these actions may result in effects or impacts to water dependent resources and fluvial processes within the watershed that will be partly co-managed by GGNRA.

The NPS understands and respects the mission of CCWD and the limitations posed by the District's water supply setting, and also recognizes that the soon to be acquired properties are, to some extent, bound by pre-existing water development and rights. The NPS believes that additional development of water from these streams has the potential to be detrimental to the subject watersheds and, therefore, detrimental to the mission of GGNRA.

As discussed in the attached comments, NPS concerns on this project center on two main issues: 1) the substantial infrastructure development and the direct/indirect impacts associated with this development; and 2) the additional consumption of water in an area that has a limited supply. Within existing authorities, the NPS will cooperate in the planning process to ensure appropriate protection measures are afforded to natural resources and physical processes to ensure watershed values and stream function are maintained or enhanced.

Thank you for the opportunity to provide our issues and concerns as you embark on the preparation of the EIR. As the environmental analysis moves towards completion and adoption we encourage CCWD to engage in active collaboration with our staff regarding our concerns. The NPS offers these concerns in the belief that the objectives of the water district and NPS resource values need not be mutually exclusive in these watersheds. If you have questions or further clarification regarding our comments please contact Nancy Hornor (415) 561-4937.

Sincerely,

Frank Dean  
General Superintendent

Attachment

**GGNRA Comments on Denniston/San Vicente Water Supply Project Initial Study**

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**NPS Comments**

Environmental Compliance

- Based on the regulatory compliance outlined on page 9, there are three federal agencies that have some regulatory jurisdiction over the project. In order to facilitate their review and approvals, the project team should consider making the environmental analysis a joint NEPA/CBQA (EIS/EIR).
- NPS is not on the list of agencies. As the manager of lands directly affected by or adjacent to your proposed project, we should be consulted on proposed activities.. Because the boundaries of the easement have not been shown, actions close to the easement boundaries may well encroach on soon to be acquired NPS lands. Any encroachment situation by CCWD, if known, needs to be disclosed in the EIR. NPS authorization would be required for any encroachment.
- Please include in the EIR a complete project schedule for all proposed infrastructure development.
- The NOP refers to easements for the footprint of the pipeline, the reservoir, and the two spoils disposal sites. Please include a map of the easement area and the surrounding land ownership. Include a description of the easement.

Impact Assessment

- The project proposes substantial infrastructure development. This development will cause a significant amount of soil disturbance. Disturbed soils are conducive to habitat for the establishment of weeds and soil erosion. The EIR should outline all the BMP's for erosion and weed control, and commit to control for no less than 5 years post construction.
- The EIR should contain a visual impact assessment and disclose whether any of the development will be seen from soon to be acquired NPS lands.
- The Initial Study dismisses analyzing the project for geologic hazards, largely based on no direct hazard to people. We request that geologic hazards be evaluated due to potential threat to structures, systems and the water supply.
- We request that noise impacts to the natural soundscape and acoustical environment be evaluated for pumps and other mechanical/electrical components of the system. For wildlife protection, include high and low frequency sounds outside the range of human audibility (refer to 2006 NPS Management Policy 4.9, Soundscape Management).
- For the sediment disposal sites -- impacts of maintenance and management, as well as lifespan and closure plans should be included in the analysis.
- The NPS is concerned regarding the soils being managed as part of the project, either hauled off, or brought into the site. Please include a complete discussion of soil management, including soil type, quantity, contaminants, and disposal and staging areas.
- On Page 20 (Impact discussion Question A), it notes that Denniston Creek provides suitable habitat for resident trout and anadromous fish. NPS field surveys in 2011 have observed *Oncorhynchus mykiss* above the reservoir in Denniston Creek. No information is provided regarding San Vicente fisheries. The EIR should describe any direct and indirect impacts associated with the new permanent diversion structure (e.g., entrainment and impingement [direct] or changes in instream habitat based on change to full use of diverted water [indirect]).

*GGNRA Comments on Denniston/San Vicente Water Supply Project Initial Study*

- Because the EIR involves a Petition for Extension of Time, the Board will need to understand the incremental impacts related solely to the extension of time. Toward that end, the EIR should evaluate the incremental effects of complete exercise of Permit 15882 as compared to the effects of water development accomplished thus far by the District.
- It is not clear whether the amount of water authorized for diversion by Permit 15882 accounted for the needs of aquatic and riparian systems. Without this information, the effects of granting the Petition for Extension of Time and the resulting full exercise of Permit 15882 cannot be reasonably understood. In order to address this issue, the EIR should evaluate the adequacy of stream flows to supply:
  - water needed to meet agricultural demand, as measured by historic use and anticipated future irrigation demand;
  - water needed to maintain aquatic and riparian habitats; and,
  - water needed to meet existing and future municipal demands, including the complete exercise of Permit 15882.
- Much of the value of this project to the District involves the rehabilitation of Denniston Reservoir. There is some concern as to the ability of the District to store water, long term, in the reservoir. An evaluation of the District's ability to store water long-term in the reservoir should be performed.
- The NPS also recommends evaluation of the following as mitigation or alternatives:
  - Based on the results of the above evaluation, the use of constraints on water diversion based on amounts and seasons of diversion that reflect the streams' ability, or lack thereof, to meet the water demands for irrigation, municipal supply, and aquatic and riparian habitat. This may include reduction in the amount of water authorized for diversion pursuant to Permit 15882.
  - An off-channel reservoir as an alternative to rehabilitation of Denniston Reservoir.
  - Use of dry-year options with the agricultural operator as a means of reducing overall demand on the streams as annual water availability variations dictate.



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NOV 16 2011

COASTSIDE COUNTY  
WATER DISTRICT

**LOMA PRIETA CHAPTER**

San Mateo \_ Santa Clara \_ San Benito Counties

David R. Dickson, General Manager  
Coastside County Water District  
766 Main Street  
Half Moon Bay, California 94019

11/14/2011

**Re:** Notice of Preparation of an Environmental Impact Report for the Denniston / San Vicente Water Supply Project, San Mateo County, CA

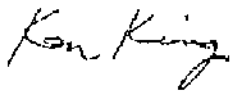
Dear Mr. Dickson:

I am writing to you on behalf of the Sierra Club Loma Prieta Chapter Coastal Issues Committee about Coastside County Water District's (CCWD) application to update its 1966 permit for pipeline construction and infrastructure improvements along Denniston Reservoir and San Vicente Creeks in order to fully utilize the original 1966 limits on these local water sources and thereby lessen dependence on imported water from San Francisco Public Utilities Commission and/or accommodate local non-priority growth – priority growth already being held in reserve. The 1966 date of that permit issuance, it should be noted, was before either the Endangered Species Act or the California Coastal Act were legislated into being. If CCWD were applying for an initial permit at this present time, there is good reason to believe that it would be unobtainable for reasons clearly listed in the **Notice of Preparation**.

The portions of the Environmental Impact Analysis on **The Notice of Preparation** dealing with Biological Resources (page 18) and Hydrology and Water Quality (page 29) raise thorny issues that we on the Coastal Issues Committee think the Draft Environmental Impact Report will find difficult to address. For instance, the biological report mentions, “several woodrat nests located in the coastal scrub adjacent to the pipeline route,” and “known red-legged frog occurrences in Denniston Reservoir and along San Vicente Creek,” the latter where heavy equipment is to dig up the narrow canyon floor and creek bed – this is now habitat – for 6000 feet of pipe replacement. The hydrology section regarding numerous potentially significant effects of the creek diversion raises concerns that need to be weighed along with climate change trends and global warming, as well as the downstream effects on Princeton Harbor, a semi-closed pollution-sensitive body of water, where Denniston empties, and to the significant length of San Vicente Creek that would experience substantial diversion of historic flows throughout its course through Moss Beach and into the northern part of the Fitzgerald Marine Reserve.

There is no question that California faces severe water challenges going forward, and it is commendable that CCWD wants to plan for leaner times ahead. We recognize that you must deal with a difficult set of constraints, but we feel it is also important that environmental concerns and a healthy long-range perspective lighten the decisions you make. We recommend that your alternative analysis take note of the increased permit availability that has been achieved through conservation measures by your neighboring agency to the north – the Montara Water and Sanitary District –and discuss the potential permit expansion possibilities were such measures to be undertaken by CCWD. We are very interested in seeing what action and/or alternatives the Draft Environmental Report finds and recommends and we close in the hope that it will adequately address these critical concerns.

Sincerely,

A handwritten signature in cursive script that reads "Ken King".

Kenneth King  
Co-Chair, Coastal Issues Committee

c.c. Merrill Bobele, Co-Chair, Coastal Issues Committee  
Sierra Club Loma Prieta Conservation Committee – All Members

# **APPENDIX C**

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## **BIOLOGICAL RESOURCES ASSESSMENT**





BIOLOGICAL RESOURCES ASSESSMENT  
**DENNISTON / SAN VICENTE WATER SUPPLY PROJECT**  
**COASTSIDE COUNTY WATER DISTRICT**

**DECEMBER 2013**

LEAD AGENCY:

Coastside County Water District  
766 Main Street  
Half Moon Bay, CA 94109

PREPARED BY:

Analytical Environmental Services  
1801 7th Street, Suite 100  
Sacramento, CA 95811  
(916) 447-3479  
[www.analyticalcorp.com](http://www.analyticalcorp.com)



BIOLOGICAL RESOURCES ASSESSMENT  
**DENNISTON / SAN VICENTE WATER SUPPLY PROJECT**  
**COASTSIDE COUNTY WATER DISTRICT**

**DECEMBER 2013**

PREPARED FOR:

Coastside County Water District  
766 Main Street  
Half Moon Bay, CA 94109

PREPARED BY:

Analytical Environmental Services  
1801 7th Street, Suite 100  
Sacramento, CA 95811  
(916) 447-3479  
[www.analyticalcorp.com](http://www.analyticalcorp.com)



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## **ATTACHMENTS**

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- Attachment 1 USFWS, CNDDDB, and CNPS Lists
- Attachment 2 List of Vascular Plants Observed Onsite
- Attachment 3 Regionally Occurring Special Status Species Table

## 1.0 INTRODUCTION

This Biological Resources Assessment (BRA) documents sensitive biological habitats and special status species that have the potential to occur on or be affected by the Denniston/San Vicente Water Supply Project (Proposed Project), located in unincorporated San Mateo County (County), California (**Figure 1**). This BRA has been prepared on behalf of the Coastside County Water District (CCWD) for use in permit applications and environmental review conducted in accordance with the California Environmental Quality Act (CEQA).

### 1.1 PROJECT LOCATION

The Proposed Project is located approximately 5.2 miles northwest of the City of Half Moon Bay in San Mateo County, California. The centroid of the project site is 37° 31' 34.4 Latitude, 122° 29' 26.6" Longitude. The project site is located within an unsectioned portion of the Corral de Tierra, Range 6 West, Township 4 South, of the "Montara Mountain, CA" U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (quad). A topographic map of the project site is provided as **Figure 2**.

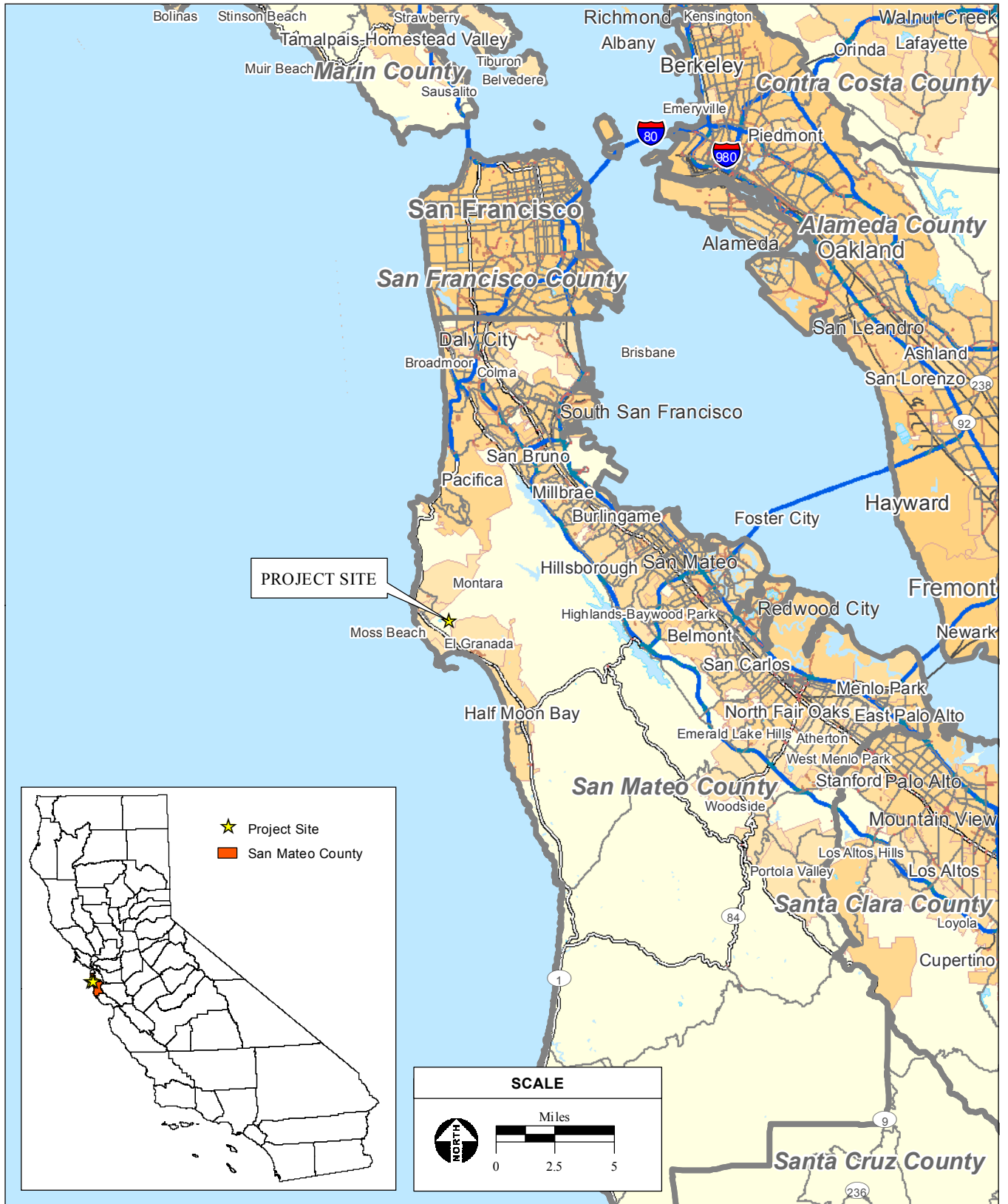
The Proposed Project is located in the northern portion of the CCWD service area. The majority of the CCWD's service area is located along the coastal terrace between the Santa Cruz Mountains to the east, the Pacific Ocean to the west, the community of Princeton by the Sea to the north, and the City of Half Moon Bay to the south. Denniston Creek and the existing Denniston Reservoir are located northeast of the Half Moon Bay Airport on the inland side of U.S. Highway 1. The Denniston Creek watershed covers approximately 8,000 acres and discharges into Pillar Point Harbor, located approximately 1.2 miles south of the existing Denniston Reservoir. The San Vicente Creek watershed covers approximately 1,170 acres and discharges into the Pacific Ocean within the boundaries of the Fitzgerald Marine Reserve (California Coastal Commission, 2008).

The topography of the surrounding area consists of rolling hills transitioning into coastal plain. The current land uses within the two watersheds are primarily dominated by open space, recreation (hiking and equestrian), and agriculture.

### 1.2 PROJECT DESCRIPTION

CCWD provides water to customers within an approximately 14 square mile area along the California coast in San Mateo County. The CCWD service area contains the City of Half Moon Bay as well as unincorporated areas of San Mateo County, including Miramar, Princeton by the Sea, and El Granada. CCWD currently serves a population of approximately 20,000 customers with water from four sources: 1) Denniston Creek; 2) wells in the vicinity of Pilarcitos Creek; 3) wells near Denniston Creek; and 4) imported water from the San Francisco Public Utilities Commission (SFPUC) (West Yost Associates, 2010).

CCWD is seeking approval from the State Water Resources Control Board (SWCRB) for a petition for extension of time for water right Permit 15882 (Application 22860). The approval of this extension of time would allow CCWD to complete the construction of a pipeline and infrastructure improvements to

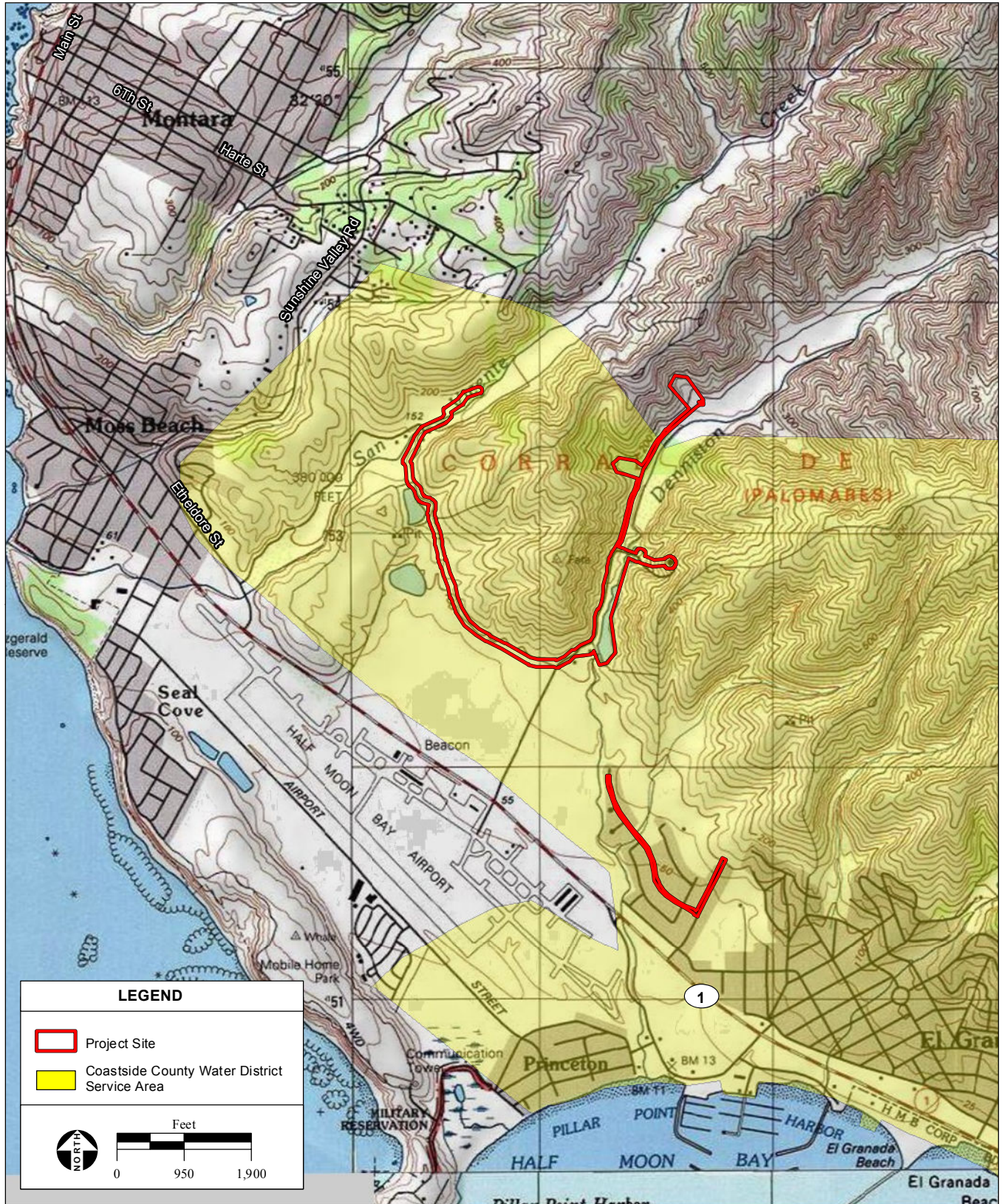


SOURCE: StreetMap North America, 2009; AES, 2013

CCWD Denniston/San Vicente Water Supply BRA / 211525 ■

**Figure 1**  
Regional Location





SOURCE: "Montara Mountain, CA" USGS 7.5 Minute Topographic Quadrangle, T4S & 5S R5W & 6W, Unsectioned Area of Corral de Tierra, Mt. Diablo Baseline & Meridian; AES, 2013

CCWD Denniston/San Vicente Water Supply BRA / 211525 ■

**Figure 2**  
Site and Vicinity



facilitate full beneficial use of authorized diversions under Permit 15882. This would increase the availability of and reliance on local water sources, thereby lessening dependence on imported water from the SFPUC. Permit 15882 allows for the direct diversion of up to 4.0 cubic feet per second (cfs) from both creeks during the period of January 1 to December 31 of each year. The permit provides that the quantity diverted from each creek shall not exceed 2.0 cfs. If the SWRCB grants this petition, CCWD would have until December 31, 2016 to complete construction of the proposed water collection system improvements and to beneficially use the water to the maximum extent authorized by Permit 15882.

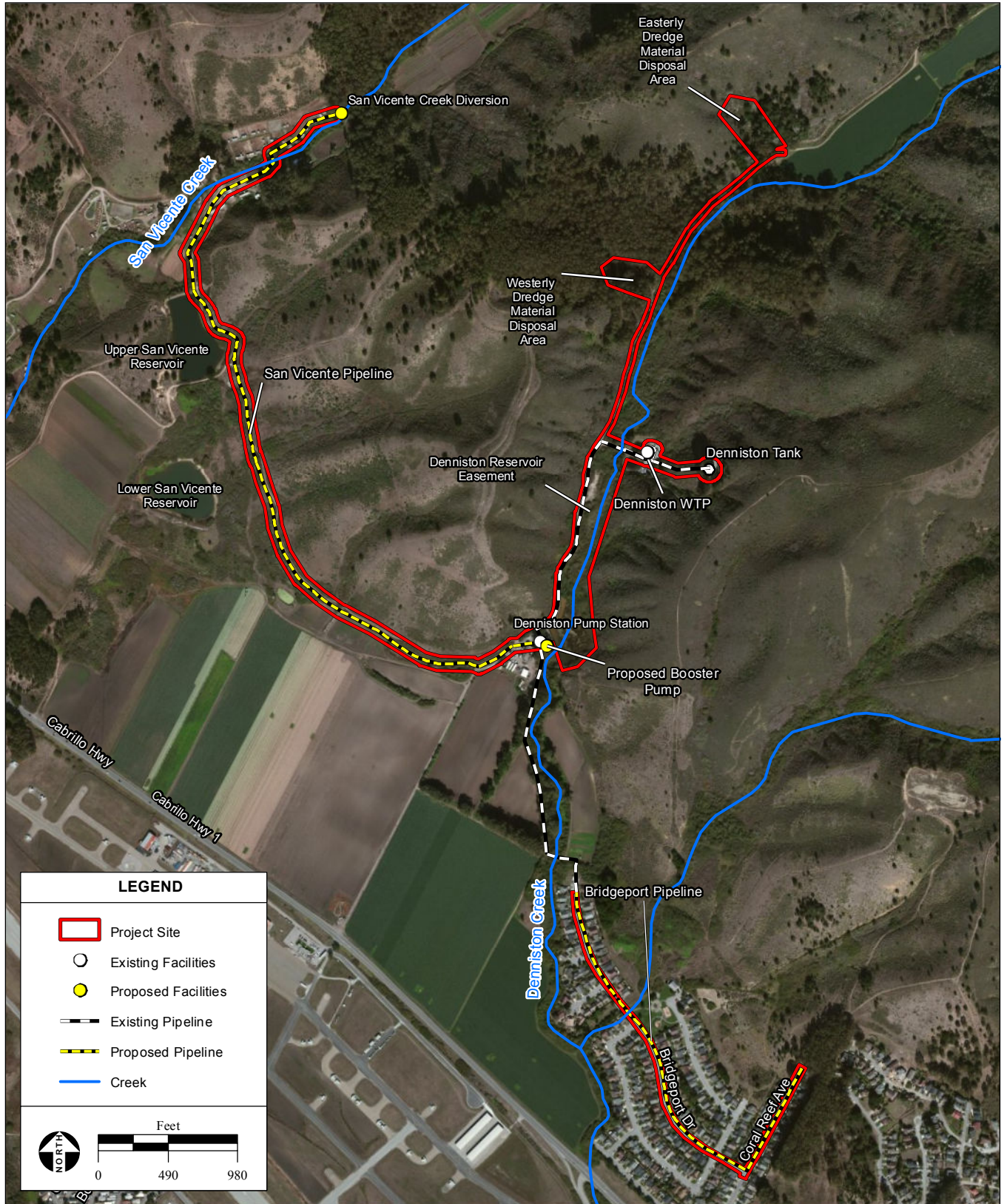
Denniston Reservoir serves as the existing Point of Diversion (POD) on Denniston Creek for the CCWD. This will not change under the Proposed Project. The authorized POD on San Vicente Creek is located approximately 4,300 feet due north of Denniston Reservoir (**Figure 3**). The existing “temporary” diversion dam and intake structure at the San Vicente POD will be replaced with a permanent structure that complies with the California Department of Fish and Wildlife (CDFW) Manual or National Marine Fisheries Service (NMFS) Guidelines including the intake screen area, the creek slope in the area below the diversion structure, and the materials used to construct the intake structure. Approximately 6,100 feet of pipeline will be constructed, predominantly within existing farm roads, from the San Vicente POD to the Denniston Creek Pump Station.

Currently, the Denniston Creek Pump Station pumps untreated water from the Denniston POD to the Denniston Water Treatment Plant (WTP), which has a current capacity to treat 1,000 gallons per minute (gpm) of water. From there, treated water is put into storage at the Denniston Tank and is gravity fed to the CCWD distribution system. Due to the hydraulic limitations addressed by the Proposed Project, the flow of treated water leaving the Denniston Tank is often limited to approximately 350 gpm. The Proposed Project will also include an increase to a portion of the existing distribution system largely within a developed area that will enable the current system to operate mostly by gravity at a greater capacity.

The capacity of the Denniston WTP will be expanded to 1,500 gpm as part of the Proposed Project. In addition, a new Booster Pump Station will be constructed immediately adjacent to the Denniston Creek Pump Station to facilitate the transfer of treated water from the Denniston Tank into the CCWD distribution system. Finally, 3,460 feet of new pipelines will be constructed along Bridgeport Drive to address the hydraulic limitations of the distribution system.

Sediment removal occurs as part of the current operations of the Denniston Creek diversion; part of the Proposed Project would include expansion of the existing program to include sediment removal from Denniston Reservoir. Sediment removal will be completed using a backhoe from the edges of the reservoir. The CEQA document prepared for this project will serve as the environmental document for the SWRCB decision on CCWD’s petition for extension of time for CCWD’s construction of the infrastructure described herein, for CCWD’s operation of the completed system envisioned when the permit was originally granted, and the expanded sediment removal program.





SOURCE: Kennedy Jenks, 2010; USGS Aerial Photograph, 6/30/2008; AES, 2013

CCWD Denniston/San Vicente Water Supply BRA / 211525 ■

**Figure 3**  
Project Components

## **2.0 REGULATORY SETTING**

### **2.1 FEDERAL**

#### **Federal Endangered Species Act**

The U.S. Fish and Wildlife Service (USFWS) and NMFS implement the federal Endangered Species Act (FESA) of 1973 (16 USC Section 1531 et seq.). Under the FESA, threatened and endangered species on the federal list and their habitats (50 CFR Subsection 17.11, 17.12) are protected from “take” (i.e., activities that harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect) as well as any attempt to engage in any such conduct, unless a Section 10 Permit is granted to an individual or a Section 7 consultation and a Biological Opinion with incidental take provisions are rendered from the lead federal agency. Pursuant to the requirements of the FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed species may be present within the project site and vicinity and determine whether the proposed project will have a potentially significant impact upon such species. Under the FESA, habitat loss is considered to be an impact to the species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under the FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC Section 1536[3], [4]). Therefore, project-related impacts to these species, or their habitats, would be considered significant and require mitigation.

Under the FESA, critical habitat may be designated by the Secretary of the Interior for any listed species. The term “critical habitat” for a threatened or endangered species refers to the following: specific areas within the geographical range of the species at the time it is listed that contain suitable habitat for the species, which may require special management considerations or protection; and specific areas outside the geographical range of the species at the time it is listed that contain suitable habitat for the species and is determined to be essential for the conservation of the species. Under Section 7 of the FESA, all federal agencies (including the USFWS and NMFS) are required to ensure that any action they authorize, fund, or carry out will not likely jeopardize the continued existence of a listed species or modify their critical habitat.

#### **Migratory Bird Treaty Act**

Most bird species, especially those that are breeding, migrating, or of limited distribution, are protected under federal and/or State regulations. Under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC Subsection 703-712), migratory bird species, their nests, and their eggs are protected from injury or death, and any project-related disturbances during the nesting cycle. As such, project-related disturbances must be reduced or eliminated during the nesting cycle.

#### **Wetlands and Waters of the United States**

The United States Army Corps of Engineers (USACE) has primary federal responsibility for administering regulations that concern waters of the U.S. (including wetlands) under Section 404 of the Clean Water Act. Section 404 of the Clean Water Act regulates the discharge of dredged or fill material

into waters of the U.S. The USACE requires that a permit be obtained if a project proposes the placement of structures within, over, or under navigable waters and/or discharging dredged or fill material into waters below the ordinary high water mark. The USACE has established a series of nationwide permits (NWP) that authorize certain activities in waters of the U.S. The term discharge of dredged material means any addition of dredged material into, including redeposit of dredged material other than incidental fallback, waters of the U.S. The term includes any addition, including redeposit other than incidental fallback, of dredged material, including excavated material, into waters of the U.S. which is incidental to any activity, including mechanized land clearing, ditching, channelization, or other excavation (33 CFR 232.2(3)(i-iii)).

In addition, a Section 401 Water Quality Certification Permit is required to comply with Clean Water Act Sections 301, 302, 303, 306, and 307 and is regulated by the State and Regional Water Quality Control Boards (RWQCB). Anyone that proposes to develop or operate a project that may result in a discharge to U.S. surface waters and/or “waters of the State” including wetlands (all types) year round and seasonal streams, lakes, and all other surface waters would require a federal permit. At a minimum, any beneficial uses lost must be replaced by a mitigation project of at least equal function, value, and area. Waste Discharge Requirements Permits are required pursuant to California Water Code Section 13260 for any persons discharging or proposing to discharge waste, including dredge/fill, that could affect the quality of the waters of the state.

## **2.2 STATE**

### **California Endangered Species Act**

The California Endangered Species Act (CESA) prohibits the take of State listed threatened and endangered species. Under the CESA, State agencies are required to consult with CDFW when preparing California Environmental Quality Act (CEQA) documents. Under the CESA, CDFW is responsible for maintaining a list of rare, threatened, and endangered species designated under state law (California Fish and Game Code 2070-2079). CDFW also maintains lists of candidate species, species of special concern, and fully protected species. Candidate species are those taxa which have been formally recognized by the CDFW and are under review for addition to the State threatened and endangered list. Species of special concern are those taxa which are considered sensitive; this list serves as a “watch list.” Pursuant to the requirements of the CESA, agencies reviewing proposed projects within their jurisdictions must determine whether any State listed species have the potential to occur within a proposed project site and if the proposed project would have any significant impacts upon such species. Project-related impacts to species on the CESA’s rare, threatened, and endangered list would be considered significant and require mitigation. CDFW can authorize take if an incidental take permit is issued by the Secretary of the Interior or Commerce in compliance with the FESA, or if the director of CDFW issues a permit under Section 2080 in those cases where it is demonstrated that the impacts are minimized and mitigated.

### **California Department of Fish and Wildlife**

Under Sections 1600-1616, the CDFW regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. CDFW provides comments on USACE Sections 404 and 401 permits under the

Fish and Wildlife Coordination Act, last amended in 1995. CDFW is authorized under California Fish and Game Code Sections 1600-1616 to develop mitigation measures and to enter into Lake and Streambed Alteration Agreements (SAA) with applicants whose proposed projects would obstruct the flow of, or alter the bed, channel, or bank of a river or stream in which there is a fish or wildlife resource, including intermittent and ephemeral streams and wetlands for the purpose of avoiding adverse impacts.

California Fish and Game Code Subsections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of birds, their nests, and eggs. California Fish and Game Code Section 3511 lists birds that are fully protected, defined as those that may not be taken or possessed except under a specific permit. California Fish and Game Code Section 5050 prohibits take of fully protected wildlife species except for scientific or recovery purposes. California Fish and Game Code Section 86 defines take as catch, pursue, or capture or attempt to catch, pursue, or capture.

### **Other Special Status Species Designations**

Plant or wildlife species on the California list of species of concern (CSC) as defined by CDFW, plant species on lists 1A, 1B, and 2 of the California Native Plant Society (CNPS), and active raptor nests are included in this classification. The CEQA Guidelines (Section 15380) also provides that a plant or animal may be treated as rare or endangered even if it has not been placed on an official list provided that it meets the criteria for listing.

### **Sensitive Vegetation Communities**

Sensitive vegetation communities are natural communities and habitats that are unique, of relatively limited distribution in the region, or of particularly high wildlife value. However, these communities may or may not necessarily contain special status species. These sensitive natural communities are usually identified in local or regional plans, policies, or regulations, or by the CDFW or the USFWS. Impacts to sensitive natural communities and habitats must be considered and evaluated under the CEQA.

### **The California Coastal Act**

The California Coastal Commission (Commission), in partnership with coastal cities and counties, plans and regulates the use of land and water in the coastal zone under the California Coastal Act (CCA). On land, the coastal zone varies in width from several hundred feet in highly urbanized areas to up to five miles in certain rural areas, and offshore the coastal zone includes a three-mile-wide band of ocean. The coastal zone established by the CCA does not include the San Francisco Bay, where development is regulated by the Bay Conservation and Development Commission (BCDC). Development activities, which are broadly defined by the CCA to include (among others) construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a coastal development permit from either the Commission or the local government. The CCA includes goals and policies that constitute the statutory standards applied to planning and regulatory decisions made by the Commission and by local governments. Refer to the County of San Mateo Local Coastal Program (LCP) discussion below for more detail. The CCC also hears appeals from decisions under a LCP.

## 2.3 LOCAL

### San Mateo County General Plan

The County's General Plan (1986) contains the following policies related to biological resources that are applicable to the Proposed Project:

#### *Vegetative, Water, Fish and Wildlife Resource Policies*

##### 1.2 Protect Sensitive Habitats

- Protect sensitive habitats from reduction in size or degradation of the conditions necessary for their maintenance.

##### 1.3 Protection and Productive Use of Economically Valuable Vegetative, Water, Fish, and Wildlife Resources

- Protect the availability and encourage the productive use of the County's economically valuable vegetative, water, fish, and wildlife resources in a manner which minimizes adverse environmental impacts.

##### 1.4 Access to Vegetative, Water, Fish, and Wildlife Resources

- Protect and promote existing rights of public access to vegetative, water, fish, and wildlife resources for purposes of study and recreation consistent with the need to protect public rights, rights of private property owners, and protection and preservation of such resources.

#### *General Policies*

##### 1.20 Importance of Sensitive Habitats

- Consider areas designated as sensitive habitats as priority resources requiring protection.

##### 1.21 Importance of Economically Valuable Vegetative, Water, Fish, and Wildlife Resources

- Consider vegetative, water, fish, and wildlife resources which are economically valuable as priority resources to be enhanced, utilized, managed, and maintained for the needs of present and future generations.

#### *Regulation of Development*

##### 1.22 Regulate Development to Protect Vegetative, Water, Fish, and Wildlife Resources

- Regulate land uses and development activities to prevent, and if infeasible, mitigate to the extent possible, significant adverse impacts on vegetative, water, fish, and wildlife resources.
- Place a priority on the managed use and protection of vegetative, water, fish, and wildlife resources in rural areas of the County.

##### 1.23 Regulate Location, Density, and Design of Development to Protect Vegetative, Water, Fish, and Wildlife Resources

- Regulate the location, density, and design of development to minimize significant adverse impacts and encourage enhancement of vegetative, water, fish, and wildlife resources.

### ***Resource Protection***

#### 1.24 Protect Vegetative Resources

- Ensure that development will: (1) minimize the removal of vegetative resources and/or; (2) protect vegetation which enhances microclimate, stabilizes slopes, or reduces surface water runoff, erosion, or sedimentation; and/or (3) protect historic and scenic trees.

#### 1.25 Protect Water Resources

- Ensure that development will: (1) minimize the alteration of natural water bodies; (2) maintain adequate stream flows and water quality for vegetative, fish, and wildlife habitats; (3) maintain and improve, if possible, the quality of groundwater basins and recharge areas; and (4) prevent to the greatest extent possible the depletion of groundwater resources.

#### 1.26 Protect Fish and Wildlife Resources

- Ensure the development will minimize the disruption of fish and wildlife and their habitats.

### ***Sensitive Habitats***

#### 1.27 Regulate Development to Protect Sensitive Habitats

- Regulate land uses and development activities within and adjacent to sensitive habitats in order to protect critical vegetative, water, fish, and wildlife resources; protect rare, endangered, and unique plants and animals from reduction in their range or degradation of their environment; and protect and maintain the biological productivity of important plant and animal habitats.

#### 1.28 Establish Buffer Zones

- Establish necessary buffer zones adjacent to sensitive habitats, which include areas that directly affect the natural conditions in the habitats.

#### 1.29 Uses Permitted in Sensitive Habitats

- Within sensitive habitats, permit only those land uses and development activities that are compatible with the protection of sensitive habitats, such as fish and wildlife management activities, nature education and research, trails and scenic overlooks, and, at a minimum level, necessary public service and private infrastructure.

#### 1.30 Uses Permitted in Buffer Zones

- Within buffer zones adjacent to sensitive habitats, permit the following land uses and development activities: (1) land uses and activities which are compatible with the protection of sensitive habitats,



such as fish and wildlife management activities, nature education and research, trail and scenic overlooks, and, at a minimum level, necessary public and private infrastructure; (2) land uses which are compatible with the surrounding land uses and will mitigate their impact by enhancing or replacing sensitive habitats; and (3) if no feasible alternative exists, land uses which are compatible with the surrounding land uses.

1.31 Regulate the Location, Site, and Design of Development in Sensitive Habitats

- Regulate the location, site, and design of development in sensitive habitats and buffer zones to minimize, to the greatest extent possible, adverse impacts and enhance positive impacts.

1.32 Performance Criteria and Development Standards

- Establish performance criteria and development standards for development permitted within sensitive habitats and buffer zones, to prevent and, if feasible, mitigate to the extent possible, significant negative impacts, and to enhance positive impacts.

***Productive Uses***

1.33 Regulate Productive Uses of Vegetative, Water, Fish, and Wildlife Resources

- Regulate resource productive uses which are subject to local control in order to prevent and, if infeasible, mitigate to the extent possible significant adverse impacts on vegetative, water, fish, and wildlife resources and to maintain and enhance (1) productivity of forests and other vegetative resources; (2) productive capacity and quality of groundwater basins and recharge areas, streams, reservoirs, and other water bodies; (3) productivity of fisheries and other fish and wildlife resources; and (4) the recreational value and aesthetic value of these areas.

1.34 Protect Productive Uses of Vegetative, Water, Fish, and Wildlife Resources

- Regulate development in order to protect and promote the managed use of vegetative, water, fish, and wildlife resources.

1.36 Protection and Productive Use of Water Resources

- Ensure that land uses and development on or near water resources will not impair the quality or productive capacity of these resources.

***Control of Incompatible Vegetative, Fish and Wildlife***

1.38 Control Incompatible Vegetative, Fish, and Wildlife

- Encourage and support the control of vegetation, fish, and wildlife resources which are harmful to the surrounding environment or pose a threat to public health, safety, and welfare.

1.39 Minimize Adverse Impacts of Programs Controlling Incompatible Vegetation, and Fish, and Wildlife

- Minimize the negative impacts and risks of programs controlling incompatible vegetation, fish, and wildlife.

### ***San Mateo County Ordinances***

The County has adopted the following ordinances to provide protection to natural resources within the County's limits.

#### ***Significant Tree Ordinance***

The Significant Tree Ordinance of San Mateo County (County of San Mateo, 2010) requires a permit for the removal of any indigenous or exotic tree with a circumference of at least 38 inches when measured at four feet vertically above the ground or immediately below the lowest branch, whichever is lower. A permit is also required for the removal of a portion of a community of trees, which refers to a group of trees of any size which are ecologically or aesthetically related to each other such that loss of several of them would cause a significant ecological, aesthetic, or environmental impact in the immediate area.

#### ***Heritage Tree Ordinance***

The Regulation of the Removal and Trimming of Heritage Trees on Public and Private Property (County of San Mateo, 1977) prohibits the removal of any heritage tree without first obtaining a permit from the San Mateo County Planning Department. A heritage tree is a tree specially listed as endangered by either the CNPS or the Federal Register or any tree species designated protected by the County Board of Supervisors.

#### ***Excavating, Grading, Filling, and Clearing Ordinance***

This ordinance requires a land clearing permit for vegetation removal when: (a) the land area to be cleared is 5,000 square feet or greater, within any two-year period except in County Scenic Corridors where vegetation removal is greater than 1,000 square feet; (b) the existing slopes are greater than 20 percent; and (c) the land area to be cleared is in any sensitive habitat or buffer zone, as identified in the County General Plan.

Applications for this permit must include plans for erosion control, the removal and disposal of vegetation, and a statement of purpose for removal of vegetation. Performance standards require erosion control and grading standards in conformance with the Grading Permit Performance Standards Handbook. Approval of the permit is subject to the finding that the granting of the permit will not have a significant adverse effect on the environment.

### **County of San Mateo Local Coastal Program**

Under the LCP, the County assumes responsibility for implementing the CCA in the unincorporated area of the County, including issuance of Coastal Development Permits (CDPs) (County of San Mateo, 2010). All development in the coastal zone requires either a CDP or an exemption from CDP requirements. For issuance of a permit, development must comply with the goals and policies of the LCP and those



ordinances adopted to implement the LCP. The Sensitive Habitat Component of the County's current LCP contains the following policies to facilitate the management of the sensitive coastal resources.

### ***General Policies***

#### **7.1 Definition of Sensitive Habitats**

- Define sensitive habitats as any area in which plant or animal life or their habitats are either rare or especially valuable and any area which meets one of the following criteria: (1) habitats containing or supporting "rare and endangered" species as defined by the State Fish and Game Commission, (2) all perennial and intermittent streams and their tributaries, (3) coastal tide lands and marshes, (4) coastal and offshore areas containing breeding or nesting sites and coastal areas used by migratory and resident water-associated birds for resting areas and feeding, (5) areas used for scientific study and research concerning fish and wildlife, (6) lakes and ponds and adjacent shore habitat, (7) existing game and wildlife refuges and reserves, and (8) sand dunes.
- Sensitive habitat areas include, but are not limited to, riparian corridors, wetlands, marine habitats, sand dunes, sea cliffs, and habitats supporting rare, endangered, and unique species.

#### **7.2 Designation of Sensitive Habitats**

- Designate sensitive habitats as including, but not limited to, those shown on the Sensitive Habitat Map for the Coastal Zone.

#### **7.3 Protection of Sensitive Habitats**

- Prohibit any land use or development which would have significant adverse impacts on sensitive habitat areas.
- Development in areas adjacent to sensitive habitats shall be sited and designed to prevent impacts that could significantly degrade the sensitive habitats. All uses shall be compatible with the maintenance of biologic productivity of the habitats.

#### **7.4 Permitted Uses in Sensitive Habitats**

- Permit only resource dependent uses in sensitive habitats. Resource dependent uses for riparian corridors, wetlands, marine habitats, sand dunes, sea cliffs and habitats supporting rare, endangered, and unique species shall be the uses permitted.
- In sensitive habitats, require that all permitted uses comply with USFWS and CDFW regulations.

### ***Riparian Corridors***

#### **7.9 Permitted Uses in Riparian Corridors**

- Within corridors, permit only the following uses: (1) education and research, (2) consumptive uses as provided for in the California Fish and Game Code and Title 14 of the California Administrative Code, (3) fish and wildlife management activities, (4) trails and scenic overlooks on public land(s), and (5) necessary water supply projects.

- When no feasible or practicable alternative exists, permit the following uses: (1) stream dependent aquaculture, provided that non-stream dependent facilities are located outside of corridor, (2) flood control projects, including selective removal of riparian vegetation, where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, (3) bridges when supports are not in significant conflict with corridor resources, (4) pipelines, (5) repair or maintenance of roadways or road crossings, (6) logging operations which are limited to temporary skid trails, stream crossings, roads, and landings, in accordance with State and County timber harvesting regulations, and (7) agricultural uses, provided no existing riparian vegetation is removed and no soil is allowed to enter the stream channels.

#### 7.11 Establishment of Buffer Zones

- On both sides of riparian corridors, from the “limit of riparian vegetation,” extend buffer zones 50 feet outward for perennial streams and 30 feet outward for intermittent streams.
- Where no riparian vegetation exists along both sides of riparian corridors, extend buffer zones 50 feet from the predictable high water point for perennial streams and 30 feet from the midpoint of intermittent streams.
- Along lakes, ponds, and other wet areas, extend buffer zones 100 feet from the high water point except for manmade ponds and reservoirs used for agricultural purposes for which no buffer zone is designated.

#### 7.17 Performance Standards in Wetlands

- Require that development permitted in wetlands minimize adverse impacts during and after construction. Specifically, require that: (1) all paths be elevated (catwalks) so as not to impede movement of water, (2) all construction takes place during daylight hours, (3) all outdoor lighting be kept at a distance away from the wetland sufficient not to affect the wildlife, (4) motorized machinery be kept to less than 45 a-weighted decibels (dBA) at the wetland boundary, except for farm machinery, (5) all construction which alters wetland vegetation be required to replace the vegetation to the satisfaction of the Planning Director including “no action” in order to allow for natural reestablishment, (6) no herbicides be used in wetlands unless specifically approved by the County Agricultural Commissioner and the CDFW, and (7) all projects be reviewed by the CDFW and the SWRCB to determine appropriate mitigation measures.

#### 7.18 Establishment of Buffer Zones

- Buffer zones shall extend a minimum of 100 feet landward from the outermost line of wetland vegetation. This setback may be reduced to no less than 50 feet only where (1) no alternative development site or design is possible; and (2) adequacy of the alternative setback to protect wetland resources is conclusively demonstrated by a professional biologist to the satisfaction of the County and the CDFW. A larger setback shall be required as necessary to maintain the functional capacity of the wetland ecosystem.

## ***Wetlands***

### **7.14 Definition of Wetlands**

- Define wetland as an area where the water table is at, near, or above the land surface long enough to bring about the formation of hydric soils or to support the growth of plants which normally are found to grow in water or wet ground. Such wetlands can include mudflats (barren of vegetation), marshes, and swamps. Such wetlands can be either fresh or saltwater, along streams (riparian), in tidally influenced areas (near the ocean and usually below extreme high water of spring tides), and marginal to lakes, ponds, and manmade impoundments. Wetlands do not include areas which in normal rainfall years are permanently submerged (streams, lakes, ponds, and impoundments), nor marine or estuarine areas below extreme low water of spring tides, nor vernal wet areas where the soils are not hydric. In San Mateo County, wetlands typically contain the following plants: cordgrass, pickleweed, jaumea, frankenia, marsh mint, tule, bullrush, narrow-leaf cattail, broadleaf cattail, pacific silverweed, salt rush, and bog rush. To qualify, a wetland must contain at least a 50 percent cover of some combination of these plants, unless it is a mudflat.

## ***Rare and Endangered Species***

### **7.32 Designation of Habitats of Rare and Endangered Species**

- Designate habitats of rare and endangered species to include, but not be limited to, those areas defined on the Sensitive Habitats Map for the Coastal Zone.

### **7.33 Permitted Uses**

- a. Permit only the following uses: (1) education and research, (2) hunting, fishing, pedestrian, and equestrian trails that have no adverse impact on the species or its habitat, and (3) fish and wildlife management to restore damaged habitats and to protect and encourage the survival of rare and endangered species.
- b. If the critical habitat has been identified by the Federal Office of Endangered Species, permit only those uses deemed compatible by the USFWS, in accordance with the provisions of the FESA of 1973, as amended.

### **7.34 Permit Conditions**

- Require, prior to permit issuance, that a qualified biologist prepare a report which defines the requirements of rare and endangered organisms. At minimum, require the report to discuss: (1) animal food, water, nesting, or denning sites and reproduction, predation, and migration requirements, (2) plants life histories and soils, climate, and geographic requirements, (3) a map depicting the locations of plants or animals and/or their habitats, (4) any development must not impact the functional capacity of the habitat, and (5) recommend mitigation if development is permitted within or adjacent to identified habitats.

### 7.35 Preservation of Critical Habitats

- Require preservation of all habitats of rare and endangered species using criteria including, but not limited to, Section 6325.2 (Primary Fish and Wildlife Habitat Area Criteria) and Section 6325.7 (Primary Natural Vegetative Areas Criteria) of the Resource Management Zoning District.

### 7.36 San Francisco Garter Snake

- Prevent any development where there is known to be a riparian or wetland location for the San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) with the following exceptions: (1) existing manmade impoundments smaller than one-half acre in surface area, and (2) existing manmade impoundments greater than one-half acre in surface area providing mitigation measures are taken to prevent disruption of no more than one-half of the snake's known habitat in that location, in accordance with recommendations from the CDFW.
- Require developers to make sufficiently detailed analyses of any construction which could impair the potential or existing migration routes of the San Francisco garter snake. Such analyses will determine appropriate mitigation measures to be taken to provide appropriate migration corridors.

## 3.0 METHODOLOGY

### 3.1 BACKGROUND RESEARCH

Analytical Environmental Services (AES) obtained information for the project site from the following sources:

- USFWS list of federally listed special status species with the potential to occur on or be affected by projects on the "Montara Mountain" quad (USFWS 2011) (**Attachment 1**);
- California Natural Diversity Database (CNDDB) list of special status species known to occur within the "Montara Mountain" quad and the surrounding five quads (San Francisco South, Hunters Point, San Mateo, Woodside, and Half Moon Bay) (CDFW, 2003) (**Attachment 1**);
- CNPS list of special status species known to occur within the "Montara Mountain" quad and the surrounding five quads (CNPS 2011) (**Attachment 1**); and
- Stream Assessment prepared for San Vicente Creek and Denniston Creek that includes portions of the project site (Jim Steele, Personal Communication).

Standard references used for the biology and taxonomy of plants include: Abrams (1951, 1960), CNPS (2011), CDFW (2003; 2005; 2009), Hickman, ed. (1993), Mason (1957), Munz (1959), and Sawyer, Keeler-Wolf, and Evens (2009). Standard references used for the biology and taxonomy of wildlife include: Cornell Lab of Ornithology (2011), Ehrlich et al. (1988), Jennings and Hayes (1994), Peterson (1990), Sibley (2003), and Stebbins (2003). AES also reviewed other biological and environmental work done for CCWD such as the ongoing SAA for the dredging at Denniston Reservoir in the vicinity of the Proposed Project to ensure that common biological issues are fully identified and addressed.

## 3.2 FIELD SURVEY AND ANALYSIS

AES staff conducted biological surveys and botanical inventories on February 2, 3, 16 and 17, 2010, May 16 and 17, 2011, June 2, 2011, July 17, 2011 and November 13, 2013. The biological surveys consisted of conducting stream assessments, conducting botanical inventories, evaluating habitat types, mapping preliminary wetlands and waterways, collecting gage data from Denniston Creek and San Vicente Creek, and documenting potential habitat for special status species with the potential to occur within the project site. The biological communities were classified using the Manual of California Vegetation, Second Edition (MCV; Sawyer, Keeler-Wolf, and Evens 2009) and were modified based on existing habitat conditions within the project site. Wetlands and other aquatic habitats were informally identified using criteria defined in the *1987 Wetland Delineation Manual* by the USACE. Habitat types present on the project site were mapped during the biological surveys using a Trimble Geo-XT handheld global positioning system (GPS) and aerial photographs and were subsequently digitized or downloaded onto appropriate base maps in ArcGIS 9. The botanical inventory was conducted in accordance with CDFW's (2009) protocol plant surveys with an AES botanist as the lead for that portion of the field work. Plants observed during the biological surveys of the project site are documented in **Attachment 2**.

A table summarizing the regionally occurring special status species identified on the USFWS, the CNPS, and the CNDDDB lists is provided as **Attachment 3**. The table provides a rationale as to whether the species have the potential to occur within the project site based on presence of the species or their habitat types documented during the biological surveys. Several special status species were eliminated because the project site lacks suitable habitat or occurs outside of the known elevation or geographic ranges for the species. Species without the potential to occur in the vicinity of the project site are not discussed further in this BRA.

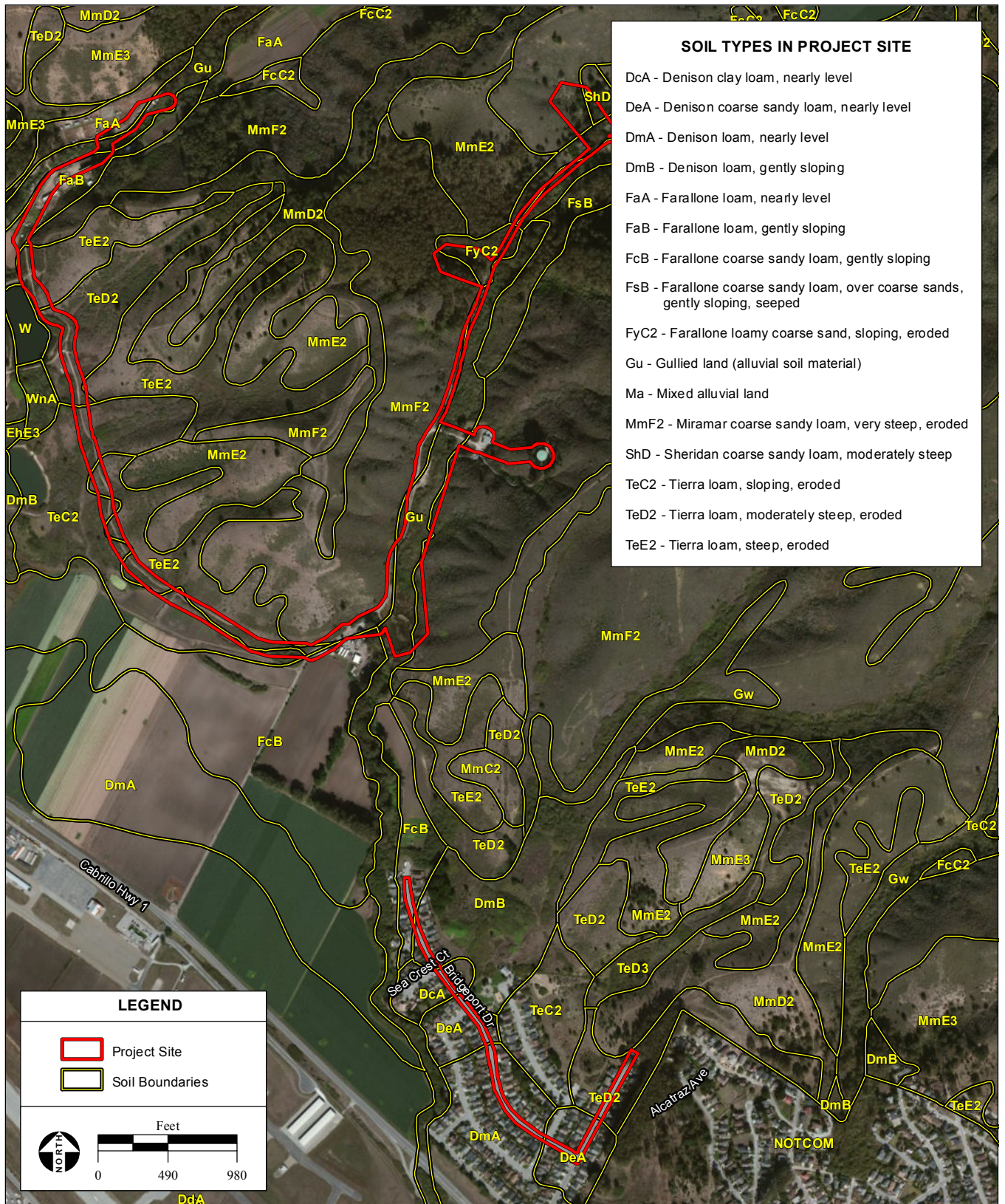
## 4.0 RESULTS

### 4.1 ENVIRONMENTAL SETTING

Land uses in the vicinity of the project site include agricultural lands, rural residences, and open space. Topography within the project site is characterized by relatively flat areas in the west, rising to sloped hills in the east. Elevation within the project site ranges from 27 to 67 meters above mean sea level.

#### Soil Types

The project site is comprised of the following soil types: (DcA) Denison clay loam, nearly level; (DeA) Denison coarse sandy loam, nearly level; (DmA) Denison loam, nearly level; (DmB) Denison loam, gently sloping; (FaA) Farallone loam, nearly level; (FaB) Farallone loam, gently sloping; (FcB) Farallone coarse sandy loam, gently sloping; (FsB) Farallone coarse sandy loam, over coarse sands, gently sloping, seeped; (FyC2) Farallone loamy coarse sand, sloping, eroded; (Gu) gullied land; (Ma) mixed alluvial land; (MmF2) Miramar coarse sandy loam, very steep, eroded; (ShD) Sheridan coarse sandy loam, moderately steep; (TeC2) Tierra loam, sloping, eroded; (TeD2) Tierra loam, moderately steep, eroded; and (TeE2) Tierra loam, steep, eroded (NRCS 2009). Several of these soil types are considered hydric soils (NRCS 2011). A soils map of the project site is provided in **Figure 4**.



SOURCE: USDA NRCS Soil Survey Geographic (SSURGO) database for San Mateo Area, California, 7/2010; USGS Aerial Photograph, 6/30/2008; AES, 2013

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**Figure 4**  
Soils Map



## Habitat Types

Seven terrestrial and four aquatic habitat types occur within the project site. Terrestrial habitat types include: California annual grassland, coastal prairie, coastal scrub, riparian forest, eucalyptus grove, agricultural, and ruderal/disturbed areas. Aquatic habitat types include: perennial creek, intermittent drainage, manmade reservoir, and seasonal wetland. A habitat map of the project site is provided in **Figure 5**. Zoomed-in views of the habitat map are provided in **Figures 5a** through **5d**. Representative photographs of the habitat types are shown in **Figures 6a** through **6f**. **Table 1** provides a summary of the terrestrial and aquatic habitat types by acreages.

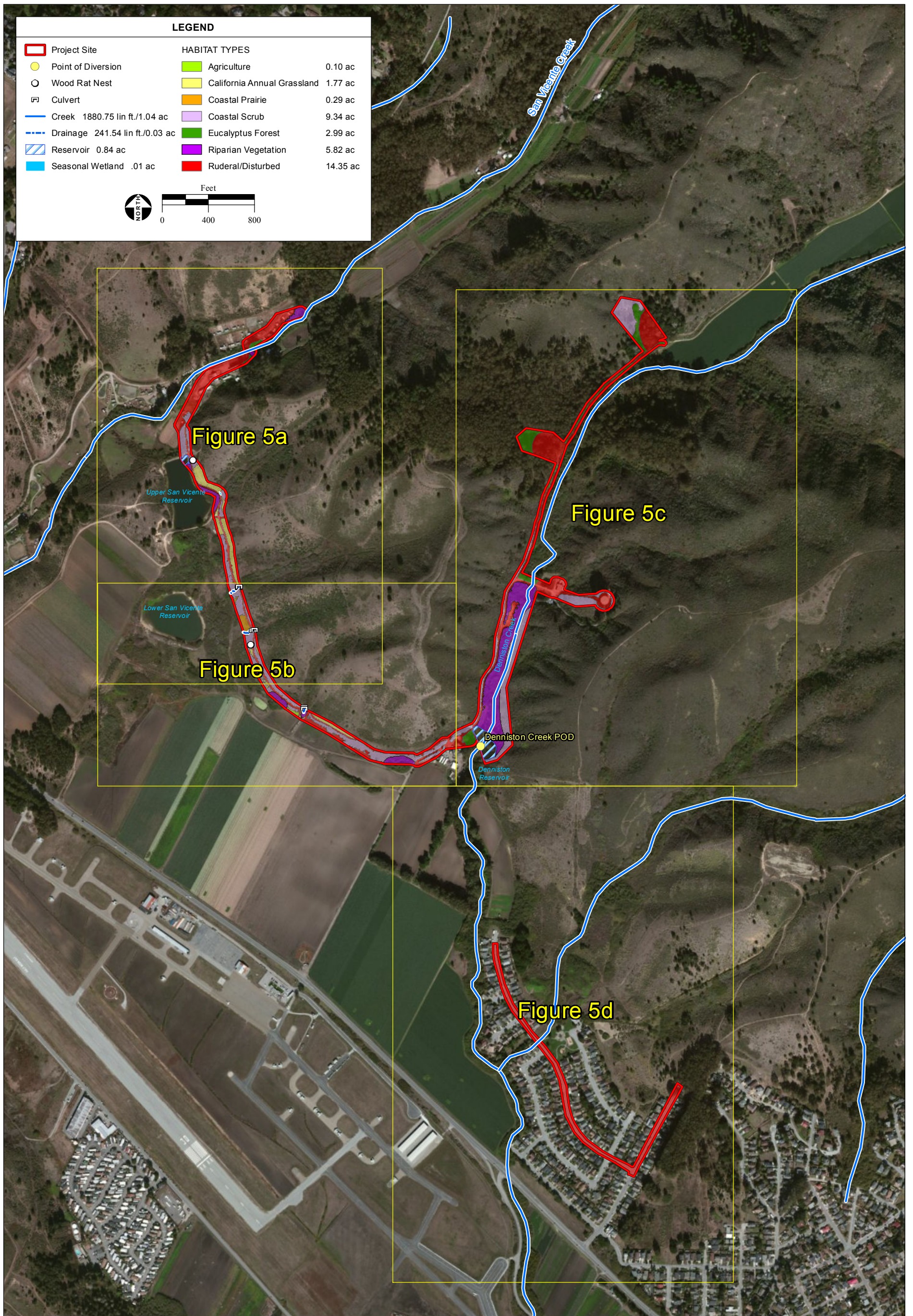
**TABLE 1**  
HABITAT TYPES BY ACREAGES WITHIN THE PROJECT SITE

Habitat Types	Acreages
<i>Terrestrial</i>	
California Annual Grassland	1.77
Coastal Prairie	0.29
Coastal Scrub	9.34
Riparian Forest	5.82
Eucalyptus Grove	2.99
Agriculture	0.10
Ruderal/Disturbed Areas	14.35
<b>Subtotal</b>	<b>34.66</b>
<i>Aquatic</i>	
Perennial Creek	1.04
Intermittent Drainage	0.03
Reservoir	.84
Seasonal Wetland	0.01
<b>Subtotal</b>	<b>1.92</b>
<b>Total</b>	<b>36.58</b>

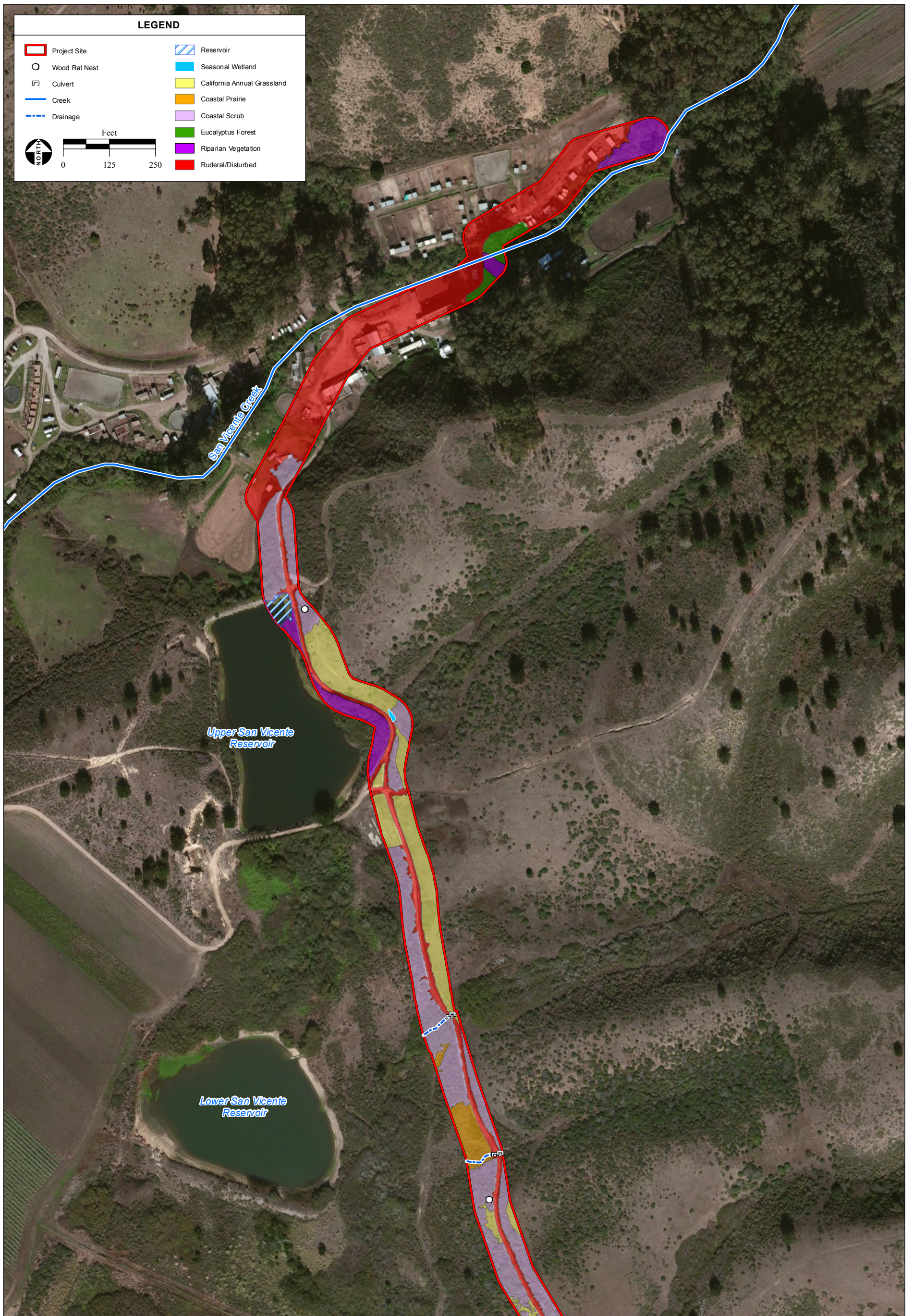
### *California Annual Grassland*

California annual grassland occurs in several areas adjacent to the scrub and along the graded roadways within the project site (**Figure 6a: Photograph 1**). Dominant vegetation includes: soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), velvet grass (*Holcus lanatus*), zorro fescue (*Vulpia myuros*), wild oat (*Avena fatua*), and Italian ryegrass (*Lolium multiflorum*). Native grasses including purple needlegrass (*Nassella pulchra*) and California oatgrass (*Danthonia californica*) occur occasionally within this habitat type. Forbs include: rose clover (*Trifolium hirtum*), storksbill (*Erodium* sp.), periwinkle (*Vinca major*), geranium (*Geranium dissectum*), vetch (*Vicia* sp.), and milk thistle (*Silybum marianum*). This habitat type corresponds most closely to Wild Oats Grassland (*Avena [barbata, fatua]* Semi-Natural Herbaceous Stands) in the MCV.





















SOURCE: Microsoft UC-G Aerial Photograph, 10/2010; AES, 2013

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**Figure 5d**  
Habitat Types and Biological Resources





**PHOTO 1:** California Annual Grassland.



**PHOTO 2:** Coastal Prairie.



**PHOTO 3:** Coastal Scrub.



**PHOTO 4:** Riparian Vegetation.



**PHOTO 5:** Eucalyptus Grove.



**PHOTO 6:** Agriculture.





**PHOTO 7:** Disposed dredge material from Denniston Reservoir



**PHOTO 8:** Ruderal/Developed.



**PHOTO 9:** Intermittent Drainage.



**PHOTO 10:** Reservoir.



**PHOTO 11:** Wetland.





**PHOTO 12:** Point of Diversion on San Vicente Creek.



**PHOTO 13:** San Vicente Creek.



**PHOTO 14:** San Vicente Creek near Fitzgerald Reserve.



**PHOTO 15:** San Vicente Creek just upstream from mouth.



**PHOTO 16:** San Vicente Creek at mouth (Halfmoon Bay).





**PHOTO 17:** Denniston Dam spillway.



**PHOTO 18:** Downstream of Denniston Dam spillway.



**PHOTO 19:** Gauge looking downstream Denniston Creek.



**PHOTO 20:** Existing barrier on Denniston Creek.



**PHOTO 21:** Dennison Creek near Existing Barrier.



**PHOTO 22:** Denniston Creek looking towards mouth at Halfmoon Bay.





**PHOTO 23:** Existing San Vicente Point of Diversion late in a dry season.



**PHOTO 24:** Existing San Vicente Point of Diversion late in a dry season.



**PHOTO 25:** Existing San Vicente Point of Diversion late in a dry season.



**PHOTO 26:** San Vicente Creek entering San Vicente Reservoir late in a dry season.



**PHOTO 27:** San Vicente Creek just before the mouth with flow late in a dry season.



**PHOTO 28:** Mouth of San Vicente Creek at its terminus, with flow, late in a dry season.





**PHOTO 29:** Denniston Creek flowing into Denniston Reservoir late in a dry season.



**PHOTO 30:** Denniston Reservoir late in a dry season.



**PHOTO 31:** Spill over from Denniston Reservoir into Denniston Creek.



**PHOTO 32:** Existing barrier along Denniston Creek.



**PHOTO 33:** Existing barrier along Denniston Creek.



**PHOTO 34:** Mouth of Denniston Creek at its terminus, with flow, late in a dry season.

### ***Coastal Prairie***

Coastal prairie occurs in an area along the south side of the dirt farm road within the project site (**Figure 6a: Photograph 2**). Native grasses and forbs dominate over non-natives in these areas. Dominant native vegetation includes: California oatgrass and purple needlegrass. Non-native grasses and native forbs including sky lupine (*Lupinus nanus*), blue-eyed grass (*Sisyrinchium bellum*), corn snapdragon (*Antirrhinum orontium*), and several species of rushes are interspersed within the dominant vegetation.

### ***Coastal Scrub***

Coastal scrub occurs on the hillsides and adjacent to the graded roadways within the project site (**Figure 6a: Photograph 3**). Dominant shrubs within this habitat type include: coyote bush (*Baccharis pilularis*), California sagebrush (*Artemisia californica*), sticky monkeyflower (*Mimulus aurantiacus*), coffeeberry (*Rhamnus californica*), and poison oak (*Toxicodendron diversilobum*). Understory vegetation intermixed within the shrubs include: California figwort (*Scrophularia californica*), lizard tail (*Eryophyllum staechadifolium*), and pearly everlasting (*Anaphalis margaritacea*). This habitat type most closely resembles Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance) and the *Baccharis pilularis* – *Artemisia californica* Association).

### ***Riparian***

Riparian habitat occurs within two portions of the project site (**Figure 6a: Photograph 4**). The riparian vegetation along San Vicente Creek is dominated by arroyo willow (*Salix lasiolepis*), Sitka willow (*Salix stichensis*), creek dogwood (*Cornus sericea*), blue gum (*Eucalyptus globulus*), and red elderberry (*Sambucus racemosa*). Shrubs and vines include: thimbleberry (*Rubus parviflorus*), western sword fern (*Polystichum minutum*), and cape ivy (*Delairea odorata*). Understory vegetation includes: stinging nettle (*Urtica dioica*), fennel (*Foeniculum vulgare*), and hedge nettle (*Stachys bullata*). The riparian canopy resembles Arroyo Willow Thickets (Shrubland Alliance); however, the area has been influenced by the activities of local farmers and the vegetation reflects human disturbance.

Riparian vegetation also occurs along Denniston Creek. The canopy is dominated by arroyo willow, Sitka willow, and red willow (*Salix laevigata*) interspersed with creek dogwood and California bay (*Umbellularia californica*). Understory vegetation includes: California tule (*Scirpus acutus*), tule (*Scirpus microcarpus*), cattail (*Typha latifolia*), California blackberry (*Rubus ursinus*), hedge nettle, thimbleberry, and horsetail (*Equisetum telmateia*). The riparian canopy resembles Arroyo Willow Thickets (Shrubland Alliance).

AES observations during the stream assessment surveys indicate that the current flows and use patterns (including the current spillage below Denniston Reservoir) appear to be sufficient to sustain the biological functions as they are now for this habitat type. In a November 13, 2013 biological survey, which was conducted late in the season of a very dry year, the flow in San Vicente Creek was enough to sustain Upper and Lower San Vicente Reservoirs, keep the channel wetted beyond the San Vicente POD, and still have visible flow at the mouth of the creek at its terminus into the Pacific Ocean. In the same survey,

Denniston Creek was observed to have water flow occurring all the way to the mouth of the creek below Denniston Reservoir even with irrigation of adjacent farm fields still underway.

### ***Eucalyptus Grove***

Eucalyptus grove occurs in two dredge material disposal areas (**Figure 6a: Photograph 5**). Eucalyptus grove is classified as Eucalyptus Groves (*Eucalyptus [globulus, camaldulensis]* Semi-Natural Woodland Stands).

The canopy of one eucalyptus grove located in the southern portion of the project site is dominated by non-native blue gum (*Eucalyptus globulus*). Single red elderberry bushes are dispersed through this area. Understory ruderal and non-native vegetation includes: cape ivy, white ramping fumitory (*Fumaria capreolata*), nasturtium (*Nasturtium officianale*), and bull thistle (*Cirsium vulgare*). The canopy of the second eucalyptus grove located in the northern portion of the project site is more open and less disturbed than the southern one, with several mature Monterey cypress (*Cupressus macrocarpa*) and Monterey pine (*Pinus radiata*) interspersed throughout the blue gum. English ivy (*Hedera helix*) is the dominant understory vegetation. However, where material is to be dispersed, understory vegetation is sparse to non-existent.

### ***Agriculture***

Agriculture occurs within the northern portion of the project site (**Figure 6a: Photograph 6**). The agricultural habitat type is tilled annually, irrigated, and treated with herbicides and pesticides as part of the crop production practices. Crops are comprised primarily of the monoculture production of Brussels sprouts (*Brassica oleracea*). This habitat type does not correspond to any vegetation community described in the MCV.

### ***Ruderal/Disturbed***

Ruderal/disturbed areas include ornamental landscaping around residential dwellings and outbuildings, horse and livestock facilities, dredge disposal sites, and along roadways including the farm roads and Bridgeport Drive (**Figure 6b: Photograph 8**). Dominant shrubs and understory vegetation include: Italian ryegrass, barley (*Hordeum marinum* sp. *gussonianum*), dogtail grass (*Cynosurus echinatus*), ripgut brome, soft-chess, pampas grass (*Cortaderia jubata*), wild oat, French broom (*Genista monspessulana*), Italian thistle (*Carduus pycnocephalus*), fennel, white ramping fumitory, Hooker's evening primrose (*Oenothera elata* ssp. *hookeri*), and narrow-leaf plantain (*Plantago lanceolata*). This habitat type does not correspond to any vegetation community described in the MCV.

### ***Perennial Creek***

Two perennial creeks occur within the project site: San Vicente Creek (**Figure 6c: Photograph 13**) and Denniston Creek (**Figure 6d: Photograph 18**). Dominant vegetation along the banks of the perennial creeks is similar to those discussed above within the riparian habitat type. The Denniston Creek channel is composed of low gradient flows with runs and shallow pools less than 12 inches deep and loose sand and shallow gravel substrate provide limited spawning potential within Denniston Creek between the dam and the Pacific Ocean.

### ***Intermittent Drainage***

Three intermittent drainages occur within the project site (**Figure 6b: Photograph 9**). Dominant vegetation includes: fennel, California blackberry, stinging nettle, California figwort, and California tule. Two of the drainages are located along the road which leads to San Vicente Reservoir and San Vicente Creek. A Streambed Alteration Agreement (SAA) may be needed for potential impacts to these drainages from the installation of the new pipeline. The third drainage flows into Denniston Creek below the POD and will not be impacted by this project.

### ***Manmade Reservoir***

Two manmade reservoirs occur within the project site. One is located along Denniston Creek, Denniston Reservoir (**Figure 6b: Photograph 9**). The other is located to the southwest of San Vicente Creek, Upper San Vicente Reservoir (**Figure 6e: Photograph 26**) (Lower San Vicente reservoir is just outside of the project area and is gravity fed from Upper San Vicente Reservoir). Both Upper and Lower San Vicente Reservoirs store water diverted by the farmer from San Vicente Creek from the current POD, which will be improved under the Proposed Project. Dominant vegetation along the banks of the manmade reservoirs include: common knotweed (*Polygonum arenastrum*), monkeyflower (*Mimulus guttatus*), stinging nettle, Hooker's evening primrose, red elderberry, California blackberry, California figwort, and California tule. Dominant vegetation along the banks of the manmade reservoirs include: common knotweed (*Polygonum arenastrum*), monkeyflower (*Mimulus guttatus*), stinging nettle, and Hooker's evening primrose, red elderberry, California blackberry, stinging nettle, and California figwort, and California tule.

### ***Seasonal Wetland***

A seasonal wetland occurs within the project site (**Figure 6b: Photograph 10**). Dominant vegetation within this habitat type includes dense sedge (*Carex densa*), spikerush (*Eleocharis macrostachya*), nutsedge (*Cyperus eragrostis*), curly dock (*Rumex crispus*), sheep sorrel (*Rumex acetosella*), and toad rush (*Juncus bufonius*).

## **4.2 POTENTIAL WATERS OF THE U.S.**

The following potential waters of the U.S. occur within the project site: two perennial creeks, three intermittent drainages, two manmade reservoirs, and one seasonal wetland (**Figure 5**). These features are likely to be subject to regulation by the USACE under Sections 404 and 401 of the CWA and/or by the CDFW under Sections 1600 – 1616 of the California Fish and Game Code. The shapes, sizes, and jurisdictional status of all features identified herein are approximate and have not been confirmed by jurisdictional agencies.

## **4.3 WILDLIFE MOVEMENT CORRIDORS**

The riparian vegetation along the creeks provides wildlife movement corridors between the hills to the northeast and the coast to the west.

#### 4.4 SPECIAL STATUS SPECIES

For the purposes of this assessment, special status has been defined to include those species that are:

- Listed as endangered or threatened under the FESA (or formally proposed for, or candidates for, listing);
- Listed as endangered or threatened under the CESA (or proposed for listing);
- Designated as endangered or rare, pursuant to California Fish and Game Code (§1901);
- Designated as fully protected, pursuant to California Fish and Game Code (§3511, §4700, or §5050);
- Designated as species of concern to the CDFW; or,
- Defined as rare or endangered under the CEQA.

**Attachment 3** provides a summary of regionally occurring special status species obtained from the USFWS, CNDDDB, and CNPS lists and evaluates whether the species have the potential to occur within the project site based on habitat types documented during the May 16 and 17, 2011 and July 17, 2011 biological surveys. An updated list was used prior to the field work conducted during the November 13, 2013 biological survey. Lists were compiled within the two quads located within a 5-mile radius surrounding the project site. Species without the potential to occur within the project site are not discussed further. **Table 2** provides a summary of special status species with the potential to occur within the project site. A critical habitat map in the vicinity of the project site is provided in **Figure 7**.

##### Special Status Plants

###### **Franciscan onion (*Allium peninsulare* var. *franciscanum*)**

Federal Status – None

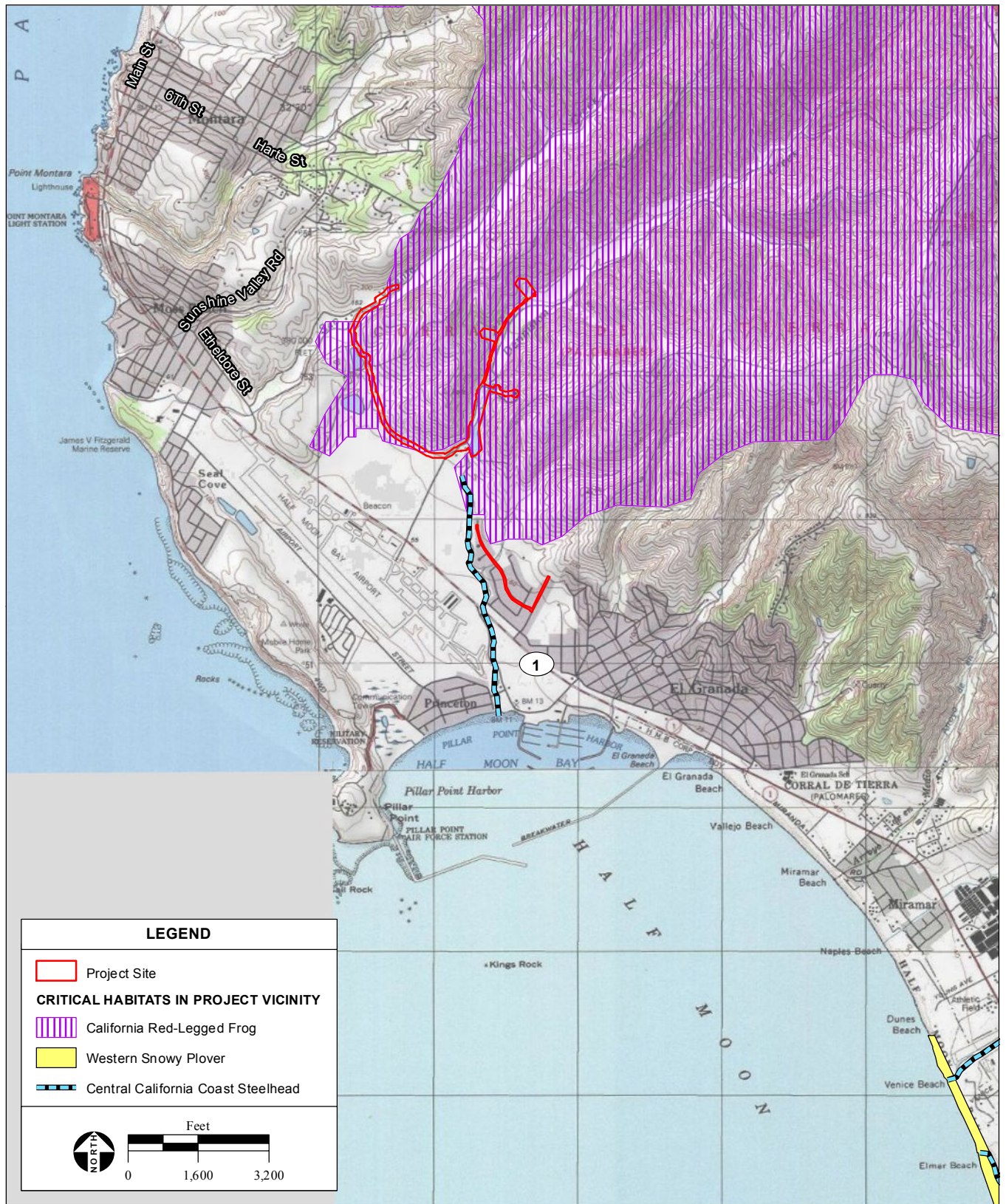
State Status – None

Other – CNPS List 1B

Franciscan onion is a bulbiferous herb usually found on clay, volcanic, often serpentinite substrate, in cismontane woodland, and valley and foothill grassland at elevations from 52 to 300 meters. The blooming period is from March to July. This species is known from Mendocino, Santa Clara, San Mateo, and Sonoma counties (CNPS, 2013).

There is one CNDDDB record documented for this species within five miles of the project site (CDFW, 2013). The record is from 1932 and is approximately 2.7 miles northeast of the project site (CNDDDB occurrence number 9; CDFW, 2013). The record states that the exact location of the polygon is unknown and that fieldwork is needed. The project site provides habitat for this species within the California annual grassland. This species was not observed during the May 16 and 17, 2011 and July 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur in the project site.





SOURCE: USFWS Critical Habitat Surveys of San Mateo County, 2005, 2010; "Montara Mountain, CA" USGS 7.5 Minute Topographic Quadrangle, T4S & 5S R5W & 6W, Unsectioned Area of Corral de Tierra, Mt. Diablo Baseline & Meridian; AES, 2013

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**Figure 7**  
Critical Habitat Map



**TABLE 2**  
SPECIAL STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

Species	Status	Habitat Description	Period of Identification	Area of Potential Occurrence in Project Site
<b>Plants</b>				
<i>Allium peninsulare</i> var. <i>franciscanum</i> Franciscan onion	--/--/1B	Bulbiferous herb usually found on clay, volcanic, often serpentinite substrate, in cismontane woodland, and valley and foothill grassland at elevations from 52 to 300 meters (CNPS, 2013).	May-July	The California annual grassland provides habitat for this species.
<i>Amsinckia lunaris</i> Bent-flowered fiddleneck	--/--/1B	Annual herb found in coastal bluff scrub, cismontane woodland, and valley and foothill grassland at elevations from 3 to 500 meters (CNPS, 2013).	March-June	The California annual grassland provides habitat for this species.
<i>Centromadia parryi</i> ssp. <i>parryi</i> Pappose tarplant	--/--/1B	Annual herb often found on alkaline soils in chaparral, coastal prairie, meadows and seeps, marshes and swamps, which is occasionally coastal salt, and valley and foothill grassland, which is occasionally vernal mesic, at elevations range from 2 to 420 meters (CNPS, 2013).	May- November	The coastal prairie and California annual grassland provides habitat for this species.
<i>Chorizanthe cuspidata</i> var. <i>cuspidata</i> San Francisco Bay spineflower	--/--/1B	Annual herb found usually on sandy substrate in coastal bluff scrub, coastal dunes, coastal prairie, and coastal scrub from 3 to 215 meters (CNPS, 2013).	April-July, occasionally through August	The coastal scrub and coastal prairie provide habitat for this species.
<i>Chorizanthe robusta</i> var. <i>robusta</i> Robust spineflower	FE/--/1B	Annual herb found usually on sandy or gravelly substrate in chaparral, cismontane woodland, coastal dunes, and coastal scrub at elevations from 3 to 300 meters (CNPS, 2013).	April- September	The coastal scrub provides habitat for this species.
<i>Cirsium andrewsii</i> Franciscan thistle	--/--/1B	Perennial herb found usually on mesic soils in broadleaved upland forest, coastal bluff scrub, coastal prairie, and coastal scrub, which is sometimes serpentinite, at elevations from 0 to 150 meters (CNPS, 2013).	March-July	The coastal scrub and coastal prairie provide habitat for this species.
<i>Collinsia multicolor</i> San Francisco collinsia	--/--/1B	Annual herb sometimes found on serpentinite substrate in closed-cone coniferous forest and coastal scrub at elevations from 30 to 250 meters (CNPS, 2013).	March-May	The coastal scrub provides habitat for this species.
<i>Dirca occidentalis</i> Western leatherwood	--/--/1B	Deciduous shrub usually found in mesic areas in broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland at elevations from 50 to 395 meters (CNPS, 2013).	January-March (April)	The riparian forest provides habitat for this species.
<i>Fritillaria lanceolata</i> var. <i>tristulis</i> Marin checker lily	--/--/1B	Bulbiferous herb found in coastal bluff scrub, coastal prairie, and coastal scrub at elevation from 15 to 150 meters (CNPS, 2013).	February-May	The coastal prairie and coastal scrub provide habitat for this species.
<i>Fritillaria liliacea</i> Fragrant fritillary	--/--/1B	Annual herb found often on serpentinite substrate in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grasslands at elevations from 3 to 410 meters (CNPS 2013).	February-April	The coastal prairie, coastal scrub, and California annual grassland provide habitat for this species.
<i>Horkelia cuneata</i> ssp. <i>sericea</i> Kellogg's horkelia	--/--/1B	Perennial herb found usually on sandy or gravelly substrate in openings in closed-cone coniferous forest, chaparral, which is occasionally maritime, coastal dunes, and coastal scrub at elevations from 10 to 200 meters (CNPS, 2013).	April- September	The coastal scrub provides habitat for this species.
<i>Horkelia marinensis</i> Point Reyes horkelia	--/--/1B	Found in sandy areas of coastal dunes, coastal prairie, and coastal scrub at elevations of 5 to 350 meters (CNPS, 2013).	May- September	The coastal scrub and coastal prairie provide habitat for this species.

Species	Status	Habitat Description	Period of Identification	Area of Potential Occurrence in Project Site
<i>Leptosiphon croceus</i> Coast yellow leptosiphon	--/--/1B	Annual herb found in coastal bluff scrub and coastal prairie from 10 to 150 meters (CNPS, 2013).	April-May	The coastal prairie provides habitat for this species.
<i>Malacothamnus hallii</i> Hall's bush-mallow	--/--/1B	Found in chaparral and coastal scrub at elevations from 10 to 760 meters (CNPS, 2013).	May-September (October)	The coastal scrub provides habitat for this species.
<i>Pentachaeta bellidiflora</i> White-rayed pentachaeta	FE/CE/1	Annual herb found in cismontane woodland and valley and foothill grassland, which is often serpentinite, at elevations from 35 to 620 meters (CNPS, 2013).	March-May	The California annual grassland provides habitat for this species.
<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i> Choris' popcorn-flower	--/--/1B	Annual herb found usually on mesic areas in chaparral, coastal prairie, and coastal scrub from 15 to 160 meters (CNPS, 2013).	March-June	The coastal scrub and coastal prairie provide habitat for this species.
<i>Polemonium carneum</i> Oregon polemonium	--/--/2	Perennial herb found in coastal prairie, coastal scrub and lower montane coniferous forest from 0 to 1,830 meters (CNPS, 2013).	April-September	The coastal scrub and coastal prairie provide habitat for this species.
<i>Silene verecunda</i> ssp. <i>verecunda</i> San Francisco campion	--/--/1B	Found usually on sandy soils in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland at elevations from 30 to 645 meters (CNPS, 2013).	March-June (August)	The coastal prairie, coastal scrub, and California annual grassland provide habitat for this species.
<i>Trifolium amoenum</i> Showy rancheria clover	FE/--/1B	Annual herb found sometimes on serpentinite in coastal bluff scrub and valley and foothill grassland at elevations from 5 to 415 meters (CNPS, 2013).	April-June	The California annual grassland provides habitat for this species.
<i>Triphysaria floribunda</i> San Francisco owl's clover	--/--/1B	Found usually on serpentinite substrate in coastal prairie, coastal scrub, and valley and foothill grassland at elevations from 10 to 160 meters (CNPS, 2013).	April-June	The coastal prairie, coastal scrub, and California annual grassland provide habitat for this species.
<i>Triquetrella californica</i> Coastal triquetrella	--/--/1B	Found usually on soil in coastal bluff scrub and Coastal scrub at elevations from 10 to 100 meters (CNPS, 2013).	N/A	The coastal scrub provides habitat for this species.
<b>Fish</b>				
<i>Oncorhynchus kisutch</i> Coho salmon – Central California Coast ESU	FE/CE/--	Spawns in streams with pool and riffle complexes. For successful breeding, require cold water and gravelly stream bed (Moyle, 2002).	Consult Agency	Denniston Creek and San Vicente Creek downstream of the project site provide habitat for this species.
<i>Oncorhynchus mykiss</i> Steelhead – Central Valley ESU	FT/--/--	Spawns and hatches in the freshwater streams where they were born. Juveniles remain in the freshwater environment for one to two years prior to migrating into the Pacific Ocean (Moyle, 2002).	Consult Agency	Denniston Creek and San Vicente Creek downstream of the project site provide habitat for this species.
<b>Amphibians</b>				
<i>Rana aurora draytonii</i> California red-legged frog	FT/CSC/ --	Found in permanent and temporary pools of streams, marshes, and ponds with dense grassy and/or shrubby vegetation from 0 to 1,500 meters (NatureServe, 2011).	November – March (breeding)  June - August (non-breeding)	San Vicente Creek, Denniston Creek, and the manmade reservoirs provide breeding habitat for this species. The riparian forests, California annual grassland, and coastal prairie provide upland habitat for this species.

<b>Reptiles</b>				
<i>Actinemys marmorata</i> Western pond turtle	--/CSC/--	Found in permanent ponds, lakes, streams, irrigation ditches, permanent pools, and intermittent streams. Requires aquatic habitats with suitable basking sites. Nest sites most often characterized as having gentle slopes less than 15 percent with little vegetation or sandy banks. Found from 0 to 1,430 meters (Stebbins 2003).	All year	San Vicente Creek, Denniston Creek, the intermittent drainages, and the manmade reservoirs provide breeding habitat for this species. The riparian forests, California annual grassland, coastal prairie provide upland habitat for this species.
<i>Thamnophis sirtalis tetrataenia</i> San Francisco garter snake	FE, FP/ CE/--	Prefers grasslands or wetlands near ponds, marshes and sloughs. May overwinter in upland areas away from water (Californiaherps, 2011).	March-July	The seasonal wetlands, manmade reservoirs, and California annual grassland provide habitat for this species.
<b>Mammals</b>				
<i>Antrozous pallidus</i> Pallid bat	--/CSC/--	Found in grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests from 0 to 2,000 meters. The species is most common in open, dry habitats with rocky areas for roosting. Roosts also include cliffs, abandoned buildings, bird boxes, and under bridges (Harris, 2000).	All Year	The ornamental landscape trees and residential dwellings within the ruderal/disturbed areas and the trees within the riparian forests provide roosting habitat for this species.
<i>Neotoma fuscipes annectens</i> San Francisco dusky-footed woodrat	--/CSC/--	Found in riparian areas along streams and rivers. Requires areas with a mix of brush and trees (NatureServe, 2011).	Year Round	The riparian forests and the creeks provide habitat for this species.

**FEDERAL:** United States Fish and Wildlife Service (USFWS, 2011)

FE Federally Endangered  
 FT Federally Threatened  
 CH Federally Designated Critical Habitat

**STATE:** California Department of Fish and Wildlife (CDFW, 2003)

CE California Listed Endangered  
 CR California Listed Rare  
 CT California Listed Threatened  
 CSC California Species of Special Concern

**CNPS:** California Native Plant Society (CNPS, 2011)

List 1B Plants Rare, Threatened, or Endangered in California and Elsewhere  
 List 2 Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

**Bent-flowered fiddleneck (*Amsinckia lunais*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

Bent-flowered fiddleneck is an annual herb found in coastal bluff scrub, cismontane woodland, and valley and foothill grassland at elevations from 3 to 500 meters. The blooming period for this species is from March through June. This species is known to occur from Alameda, Contra Costa, Colusa, Lake, Marin, Napa, San Benito, Santa Clara, Santa Cruz, San Mateo, and Yolo counties (CNPS, 2013).

There are no CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The California annual grassland within the project site provides habitat for this species. This species was not observed during the May 16 and 17, 2011 biological surveys which were conducted within the evident and identifiable blooming period. This species does not occur in the project site.

**Pappose tarplant (*Centromadia parryi* ssp. *parryi*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

Pappose tarplant is an annual herb often found on alkaline soils in chaparral, coastal prairie, meadows and seeps, marshes and swamps, which is occasionally coastal salt, and valley and foothill grassland, which is occasionally vernal mesic, at elevations range from two to 420 meters. The blooming period for this species is from May through November. This species is known to occur in Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, and Sonoma counties (CNPS, 2013).

There are no CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The coastal prairie and California annual grassland within the project site provides habitat for this species. This species was not observed during the May 16 and 17, 2011 and July 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur in the project site.

**San Francisco Bay spineflower (*Chorizanthe cuspidata* var. *cuspidata*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

San Francisco Bay spineflower is an annual herb usually found on sandy substrate in coastal bluff scrub, coastal dunes, coastal prairie, and coastal scrub from three to 215 meters. The blooming period for this species is from April through July, and occasionally through August. This species is known to occur in Alameda, Marin, San Francisco, San Mateo, and Sonoma counties (CNPS, 2013).

There are no CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The coastal scrub and coastal prairie within the project site provides habitat for this species. This species was not observed during the May 16 and 17, 2011 and July 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur in the project site.

**Robust spineflower (*Chorizanthe robusta* var. *robusta*)**

Federal Status – Endangered

State Status – None

Other – CNPS List 1B

Robust spineflower is an annual herb usually found on sandy or gravelly substrate in chaparral, cismontane woodland, coastal dunes, and coastal scrub at elevations from three to 300 meters. The blooming period for this species is from April through September. This species is known to occur in Alameda, Monterey, Marin, Santa Clara, Santa Cruz, San Francisco, and San Mateo counties (CNPS, 2013).

There are no CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The coastal scrub within the project site provides habitat for this species. This species was not observed during the May 16 and 17, 2011 and July 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur in the project site.

**Franciscan thistle (*Cirsium andrewsii*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

Franciscan thistle is a perennial herb usually found on mesic areas in broadleaved upland forest, coastal bluff scrub, coastal prairie, and coastal scrub, which is sometimes serpentinite, at elevations from zero to 150 meters. The blooming period for this species is from March through July. This species is known to occur in Contra Costa, Marin, San Francisco, San Mateo, and Sonoma counties (CNPS, 2013).

There are two CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The nearest record is from 2000 and is located approximately 2.5 miles northwest of the project site (CNDDDB occurrence number 3). The record states that the exact location is unknown and that fieldwork is needed. The coastal scrub and coastal prairie within the project site provide habitat for this species. This species was not observed during the May 16 and 17, 2011 and July 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur in the project site.

**San Francisco collinsia (*Collinsia multicolor*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

San Francisco collinsia is an annual herb sometimes found on serpentinite substrate in closed-cone coniferous forest and coastal scrub at elevations from 30 to 250 meters. The blooming period for this species is from March through May. This species is known to occur in Alameda, Contra Costa, Marin, Santa Clara, San Mateo, and Sonoma counties (CNPS, 2013).

There are three CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The nearest record is from 1893 and is located approximately 2.7 miles northeast of the project site (CNDDDB occurrence number 15). The record states that the exact location is unknown and that fieldwork is needed. The coastal scrub within the project site provides habitat for this species. This species was not observed during the May 16 and 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur in the project site.

**Western leatherwood (*Dirca occidentalis*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

Western leatherwood is a deciduous shrub usually found in mesic areas in broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland at elevations from 50 to 395 meters. The blooming period for this species is from January through March, and occasionally through April. This species is known to occur in Alameda, Contra Costa, Marin, Santa Clara, San Mateo, and Sonoma counties (CNPS, 2013).

There are four CNDDDB records documented for this species within five miles of the project site (occurrence numbers: 10, 11, 38, 53) (CDFW, 2013). The nearest record (53) is from 1996 and is located approximately 2.9 miles north of the project site. The record states that approximately 20 plants were observed within a brushy setting on south-facing slopes. The riparian forest within the project site provides suitable habitat for this species. Because this species is a deciduous shrub, its characteristics are identifiable outside of the blooming period. This species was not observed during the biological surveys conducted within the project site. This species does not occur in the project site.

**Marin checker Lily (*Fritillaria lanceolata* var. *tristulis*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

Marin checker lily is a bulbiferous herb found in coastal bluff scrub, coastal prairie, and coastal scrub at elevations from 15 to 150 meters. The blooming period for this species is from February through May. This species is known to occur in Marin and San Mateo counties (CNPS, 2013).

There are no CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The coastal prairie and coastal scrub within the project site provide habitat for this species. This species was not observed during the May 16 and 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur in the project site.

**Fragrant Fritillary (*Fritillaria liliacea*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

Fragrant fritillary is a perennial herb found in broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland at elevations from 60 to 1,300 meters. The blooming period for this species is from February through April. This species is known to occur in Alameda, Contra Costa, Monterey, Marin, San Benito, Santa Clara, San Francisco, San Mateo, Solano, and Sonoma counties (CNPS, 2013).

There is one CNDDDB record documented for this species within five miles of the project site (CDFW, 2013). The record is from 1931 and is located approximately 2.7 miles northeast of the project site (CNDDDB occurrence number 37). The record states that the exact location is unknown and that a site visit is needed. The coastal scrub, California annual grassland, and coastal prairie within the project site provide habitat for this species. This species was not observed during the May 16 and 17, 2011 and July 17, 2011, biological surveys of the project site. The biological surveys were conducted outside of the evident and identifiable blooming period for this species. This species has the potential to occur within the project site. A plant survey should be conducted by a qualified botanist prior to commencement of construction to determine whether this species occurs within the project site. The evident and identifiable blooming period for this species is February through April and the surveys should be conducted during this window of time.

**Kellogg's horkelia (*Horkelia cuneata* ssp. *sericea*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

Kellogg's horkelia is a perennial herb usually found on sandy or gravelly substrate in openings in closed-cone coniferous forest, chaparral, occasionally in maritime areas, coastal dunes, and coastal scrub at elevations from ten to 200 meters. The blooming period for this species is from April through September. This species is known to occur in Alameda, Monterey, Marin, Santa Barbara, Santa Cruz, San Francisco, San Luis Obispo, and San Mateo counties (CNPS, 2013).



There is one CNDDDB record documented for this species within five miles of the project site (CDFW, 2013). The record is from 2000 and is located approximately four miles southeast of the project site (CNDDDB occurrence number 39). The record states that the only source of information is from a 2000 collection obtained from a label stating that the collection was obtained from a ridge top within a grassland habitat. The coastal scrub within the project site provides habitat for this species. This species was not observed during the May 16 and 17, 2011 and July 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur within the project site.

**Point Reyes horkelia (*Horkelia marinensis*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

Point Reyes horkelia is a perennial herb found in sandy areas on coastal dunes, coastal prairie, and coastal scrub habitats at elevations from five to 350 meters. The blooming period for this species is from May through September. This species is known to occur in Mendocino, Marin, Santa Cruz, San Mateo, and Sonoma counties (CNPS, 2013).

There are no CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The coastal prairie and coastal scrub within the project site provide habitat for this species. This species was not observed during the May 16 and 17, 2011 and July 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur within the project site.

**Coast yellow leptosiphon (*Leptosiphon croceus*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

Coast yellow leptosiphon is an annual herb found in coastal bluff scrub and coastal prairie at elevations from ten to 150 meters. The blooming period for this species is from April through May. This species is known to occur in Monterey, Marin, and San Mateo counties (CNPS, 2013).

There are two CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The nearest record is from 2004 and is located approximately 1.1 miles west of the project site (CNDDDB occurrence number 2). The record states that an unknown number of individuals were observed in 2004 on a coastal terrace bluff within coastal prairie habitat. The coastal prairie within the project site provides habitat for this species. This species was not observed during the May 16 and 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur within the project site.

**Hall's bush mallow (*Malacothamnus hallii*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

Hall's bush mallow is a perennial evergreen shrub found in chaparral and coastal scrub at elevations from ten to 760 meters. The blooming period for this species is from May through October. This species is known to occur in Contra Costa, Lake, Mendocino, Merced, Santa Clara, San Mateo, and Stanislaus counties (CNPS, 2013).

There is one CNDDDB record documented for this species within five miles of the project site (CDFW, 2013). The record is from 1902 and is located approximately 2.7 miles northeast of the project site (CNDDDB occurrence number 24). The record states that the exact location is unknown and that fieldwork is needed. The coastal scrub within the project site provides habitat for this species. This species was not observed during the May 16 and 17, 2011 and July 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur within the project site.

**White-rayed pantechaeta (*Pantechaeta bellidiflora*)**

Federal Status – Endangered

State Status – Endangered

Other – CNPS List 1B

White-rayed pantechaeta is an annual herb found in cismontane woodland and valley and foothill grassland, which is often on serpentinite substrate, at elevations from 35 to 620 meters. The blooming period for this species is from March through May. This species is known to occur in Monterey, Santa Cruz, San Luis Obispo, and San Mateo counties (CNPS, 2013).

There is one CNDDDB record documented for this species within five miles of the project site (CDFW, 2013). The record is from 1991 and is located approximately 4.9 miles northeast of the project site (CNDDDB occurrence number 2). The record states that the occurrence has been extirpated. The California annual grassland within the project site provides habitat for this species. This species was not observed during the May 16 and 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur within the project site.

**Choris' popcorn-flower (*Plagiobothrys chorisianus* var. *chorisianus*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

Choris' popcorn-flower is an annual herb usually found on mesic areas in chaparral, coastal prairie, and coastal scrub from 15 to 160 meters. The blooming period for this species is from March through June.

This species is known to occur in Alameda, Santa Cruz, San Francisco, and San Mateo counties (CNPS, 2013).

There is one CNDDDB record documented for this species within five miles of the project site (CDFW, 2013). The record is from 1994 and is located approximately 4.9 miles northeast of the project site (CNDDDB occurrence number 10). The record states that two colonies were observed interspersed with coastal grassland along a ridge top and slope down to wet meadow. The coastal scrub and coastal prairie within the project site provide habitat for this species. This species was not observed during the May 16 and 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur within the project site.

**Oregon polemonium (*Polemonium carneum*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

Oregon polemonium is a perennial herb found in coastal prairie, coastal scrub, and lower montane coniferous forest from zero to 1,830 meters. The blooming period for this species is from April through September. This species is known to occur in Alameda, Del Norte, Humboldt, Marin, San Francisco, Siskiyou, San Mateo, and Sonoma counties in California and in Oregon and Washington (CNPS, 2013).

There is one CNDDDB record documented for this species within five miles of the project site (CDFW, 2013). The record is from 1960 and is located approximately 3.4 miles northeast of the project site (CNDDDB occurrence number 2). The record states that the exact location is unknown and that fieldwork is needed. The coastal scrub and coastal prairie present within the project site provide suitable habitat for this species. This species was not observed during the May 16 and 17, 2011 and July 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur within the project site.

**San Francisco campion (*Silene verecunda* ssp. *verecunda*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

San Francisco campion is a perennial herb usually found on sandy soils in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland at elevations from 30 to 645 meters. The blooming period for this species is from March through June, and sometimes through August. This species is known to occur in Santa Cruz, San Francisco, San Mateo, and Sutter counties (CNPS, 2013).

There is one CNDDDB record documented for this species within five miles of the project site (CDFW, 2013). The record is from 1900 and is located approximately 1.4 miles east of the project site (CNDDDB occurrence number 11). The record states that the exact location is unknown and that fieldwork is

needed. The coastal scrub, coastal prairie, and California annual grassland within the project site provide habitat for this species. This species was not observed during the May 16 and 17, 2011 and July 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur within the project site.

**Showy rancheria clover (*Trifolium amoenum*)**

Federal Status – Endangered

State Status – None

Other – CNPS List 1B

Showy rancheria clover is an annual herb sometimes found on serpentinite substrate in coastal bluff scrub and valley and foothill grassland at elevations from five to 415 meters. The blooming period for this species is from April through June. This species is known to occur in Marin, Napa, Santa Clara, San Mateo, Solano, and Sonoma counties (CNPS, 2013).

There are no CNDDDB records documented for this species within five miles of the project site (CDFW, 201303). The California annual grassland within the project site provides suitable habitat for this species. This species was not observed during the May 16 and 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur within the project site.

**San Francisco owl's clover (*Triphysaria floribunda*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

San Francisco owl's clover is an annual herb usually found on serpentinite substrate in coastal prairie, coastal scrub, and valley and foothill grassland at elevations from 10 to 160 meters. The blooming period for this species is from April through June. This species is known to occur within Marin, San Francisco, and San Mateo counties (CNPS, 2013).

There is one CNDDDB record documented for this species within five miles of the project site (CDFW, 2013). The record is from 1991 and is located approximately 4.9 miles northeast of the project site (CNDDDB occurrence number 16). The record states that the exact location is unknown and that fieldwork is needed. The coastal scrub, coastal prairie, and California annual grassland within the project site provide habitat for this species. This species was not observed during the May 16 and 17, 2011 biological surveys conducted within the evident and identifiable blooming period. This species does not occur within the project site.

**Coastal Triquetrella (*Triquetrella californica*)**

Federal Status – None

State Status – None

Other – CNPS List 1B

Coastal triquetrella is a moss usually found on soil in coastal bluff scrub and coastal scrub at elevations from ten to 100 meters. This species is identifiable year-round. This species is known to occur in Contra Costa, Del Norte, Mendocino, Marin, San Diego, San Francisco, San Mateo, and Sonoma counties in California, as well as in Oregon (CNPS, 2013).

There are no CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The coastal scrub within the project site provides habitat for this species. This species was not observed during the biological surveys conducted within the evident and identifiable time of year. This species does not occur within the project site.

## **Special Status Wildlife**

### ***Fish***

#### **Steelhead - Central California Coast ESU (*Oncorhynchus mykiss irideus*)**

Federal Status – Threatened, Critical Habitat

State Status – None

Steelhead-Central California Coast Evolutionary Significant Unit (ESU) is found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. This species spawns in streams with pool and riffle complexes. Cold water and a gravelly streambed are required for successful breeding (NMFS, 2011).

Critical habitat for the Central California Coast steelhead ESUs was originally designated on February 16, 2000. Designated critical habitat includes all river reaches and estuarine areas accessible to listed steelhead in coastal river basins from the Russian River to Aptos Creek, California (inclusive), and in the drainages of San Francisco and San Pablo Bays (Federal Register 2000). Also included are adjacent riparian zones, all waters of San Pablo Bay westward of the Carquinez Bridge, and all waters of San Francisco Bay from San Pablo Bay to the Golden Gate Bridge.

Designated critical habitat includes standard geomorphological features such as bed, bank, and channel found within the designated stream reaches, and includes the lateral extent, as defined by the ordinary high-water line (33 CFR 329.11). In areas where the ordinary high-water line has not been defined, the lateral extent is defined by the bankfull elevation (70 FR 52488).

Designated critical habitat for the Central California Coast steelhead ESU was vacated pursuant to an April 30, 2002, court order. The court order remanded the critical habitat designations for 19 steelhead and salmon ESUs to NMFS for new rulemaking to re-designate critical habitat because of inadequate economic analysis. This assessment was completed and critical habitat for steelhead was re-designated by National Oceanic and Atmospheric Administration (NOAA) NMFS on August 12, 2005.

The primary constituent elements essential for the conservation of the Central California Coastal steelhead ESU are those sites and habitat components that support one or more life stages, including: (1)

Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development; (2) Freshwater rearing sites with: (i) Water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; (ii) Water quality and forage supporting juvenile development; and (iii) Natural cover such as shade, submerged and overhanging large wood, log jams, beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks; (3) Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival; and (4) Estuarine areas free of obstruction and excessive predation with: (i) Water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between freshwater and saltwater; (ii) Natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels; and (iii) Juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation (70 FR 52488).

Designated critical habitat in Denniston Creek occurs from the outlet at 37.5033N, -122.4869W to the upstream endpoint at 37.5184N, -122.4896W. The portion of Denniston Creek that occurs within the project site is 0.11 miles north of the upstream extent of designated critical habitat. The project site does not occur within the designated critical habitat for this species.

In order to spawn within Denniston Creek, adult fish must enter Denniston Creek through Pillar Point Harbor. Pillar Point Harbor is located at the gateway to the watershed for anadromous fish. The building of the breakwater was completed in 1967, which coincides closely with the loss of documented anadromous runs in Denniston Creek. Fresh water signal loss is consistent with fish not detecting a home channel entrance. The breakwater was designed to be permeable to flush pollutants, but this design mixing also contributes to diluting the freshwater signal from Denniston Creek because Denniston Creek water now flows through the structure and the harbor entrance, which reduces the attraction of fish to the harbor entrance. This mixing also diffuses the chemical signals that salmonids use to home on a specific creek once inside the breakwater. This probably is the most significant factor that has caused the apparent loss of the historical steelhead run in Denniston Creek.

The Denniston Creek dam is a complete barrier to upstream anadromous fish passage. Any fish observed above the dam are more likely remnant fish stocked at the reservoir, as this practice occurred for many years, or remnant resident populations (or a combination of both), rather than juveniles directly from ocean run stocks since the Denniston Dam has been in-place since the 1930's. The portion of Denniston Creek from the dam downstream to the Pacific Ocean contains several culverts that are obstacles and/ or barriers to upstream anadromous fish migration (**Figure 6f**). Fish observed downstream of the dam have a greater likelihood of getting there by spilling over the dam than running upstream from the ocean, based on these barriers and the lack of any observations of ocean-run salmonids since the mid 1960's.

Based on AES stream surveys conducted with sub-consultant Jim Steele and AES personnel, the Denniston Creek channel is composed of low gradient flows with runs and shallow pools less than 12 inches deep. Loose sand and shallow gravel substrate provide limited spawning potential within Denniston Creek between the dam and the Pacific Ocean. The low gradient sand and fines dominate the channel, with < 20% pool frequency and no significant spawning gravels. For these reasons, Denniston Creek is rated as poor for salmonids (Montgomery-Buffington Stream Reach Rating) and would result in poor spawning success.

Therefore, the primary causes for lack of spawning in Denniston Creek appear to be Pillar Point Harbor and breakwaters, existing barriers and obstacles in the creek bed, and lack of suitable habitat, and not water flows. Due to channel morphology and the relative width of Denniston Creek, any increased flow would only add depth and not width to the creek; therefore, little fishery habitat could be gained in this relatively poor spawning habitat.

There are no historical or present anadromous fish resources documented in San Vicente Creek. A complete barrier to fish passage existed at the confluence of the Pacific Ocean and San Vicente Creek until it was removed in 2006. Based on in stream evaluation, the portion of San Vicente Creek from the current diversion structure downstream to the Pacific Ocean contains several culverts that are obstacles to fish migration. Furthermore, during the stream assessment it was observed that the channel is composed of shallow pools and loose sands that lack gravel substrate required for successful spawning habitat. San Vicente Creek is not listed as critical habitat for steelhead or any other special-status species.

There are three CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The nearest record is from 1999 and is located approximately 3.1 miles southeast of the project site within Frenchmans Creek (CNDDDB occurrence number 3). None of the occurrences are documented within Denniston Creek or San Vicente Creek. This species was not observed during the February 2, 3, 16 and 17, 2010, May 16 and 17, 2011, June 2, 2011, July 17, 2011 and November 13, 2013 biological surveys of the project site. This species does not occur within the portion of Denniston Creek located within the project site. This species does not occur within the portion of San Vicente Creek located within the project site and is not documented to occur anywhere within San Vicente Creek.

### **Central California Coast Coho Salmon (*Oncorhynchus kisutch*)**

Federal Status – Endangered

State Status – Endangered

Coho salmon – Central California Coast ESU spawns in streams with pool and riffle complexes. For successful breeding, cold water and a gravelly streambed are required. Coho salmon is found during the first half of their life cycle rearing and feeding in streams and small freshwater tributaries. Spawning habitat is small streams with stable gravel substrates. The remainder of the life cycle is spent foraging in estuarine and marine waters of the Pacific Ocean. This species is known to occur throughout the major rivers and tributaries from the Noyo River, south of Fort Bragg, to the San Lorenzo River, east of Santa



Cruz. The distribution includes Marin, Mendocino, San Francisco, San Mateo, Santa Cruz, and Sonoma counties (NMFS, 2011).

A dam was constructed on Denniston Creek in the 1930's approximately 0.5 miles south of the portion of Denniston Creek that occurs within the project site. The dam on Denniston Creek is a complete barrier to fish passage. The portion of Denniston Creek from the dam downstream to the Pacific Ocean contains culverts that are obstacles to fish migration. The channel is composed of low gradient flows with runs and shallow pools less than 12 inches deep, and loose sand and shallow gravel substrate provide limited spawning potential within Denniston Creek between the dam and the Pacific Ocean.

There are no historical fish resources documented within San Vicente Creek. A complete barrier to fish passage existed at the confluence of the Pacific Ocean and San Vicente Creek until it was removed in 2006. A complete barrier to fish passage occurs at a diversion structure located approximately 0.5 miles downstream of the project site. The portion of San Vicente Creek from the diversion structure downstream to the Pacific Ocean contains several culverts that are obstacles to fish migration. The channel is composed of shallow pools and loose sand that lacks shallow gravel substrate, resulting in limited spawning potential within San Vicente Creek (Jim Steele, Personal Communication). This species does not occur within the portion of San Vicente Creek located within the project site and is not known to occur within San Vicente Creek.

There are no CNDDDB records documented for this species within five miles of the project site (CDFW 2013). This species was not observed during the February 2, 3, 16 and 17, 2010, May 16 and 17, 2011, June 2, 2011, July 17, 2011 and November 13, 2013 biological surveys of the project site. This species does not occur within the portion of Denniston Creek located within the project site, but may occur within Denniston Creek downstream of the project site, although this is very unlikely due to the poor habitat conditions.

### **Central Valley Steelhead (*Oncorhynchus mykiss*)**

Federal Status - Threatened

State Status – None

The Central Valley steelhead ESU spawns and hatches in the freshwater streams where they were born. The juveniles remain in the freshwater environment for one to two years prior to migrating into the Pacific Ocean. When sexual maturity is reached, they migrate back to their natal streams to spawn. The Central Valley steelhead ESU begins freshwater migrations between August and October. This ESU has an average lifespan of six to seven years; it does not usually die immediately after spawning, and is capable of spawning several times throughout its lifetime (Moyle, 2002). The range of this ESU includes all naturally spawned populations of steelhead in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries, and two artificial propagation programs. The range includes portions of Amador, Alameda, Butte, Calaveras

Contra Costa, Colusa, Glenn, Mariposa, Merced, Nevada, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tuolumne, Yolo, and Yuba counties (CDFW, 2013).

There are no CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). Refer to the Central California Coast Coho Salmon discussion above regarding channel conditions and barriers to fish passage within Denniston Creek and San Vicente Creek between the project site and the Pacific Ocean. This species was not observed during the February 2, 3, 16 and 17, 2010, May 16 and 17, 2011, June 2, 2011, July 17, 2011 and November 13, 2013 biological surveys of the project site. The project site occurs outside of the known geographic range for the Central Valley steelhead ESU. However, this species has a high likelihood of straying, and common usage of multiple streams (instead of just one like in Coho), therefore this habitat is suitable to any anadromous or resident trout that uses the California/Pacific Coast including Central Valley ESU. This species does not occur within the portion of Denniston Creek located within the project site, but may occur within Denniston Creek downstream of the project site, although this is very unlikely due to the relatively poor habitat conditions.

### ***Amphibians***

#### **California Red-Legged Frog (*Rana aurora draytonii*; CRLF)**

Federal Status – Threatened, Critical Habitat

State Status – Species of Special Concern

CRLF require aquatic breeding areas embedded within a matrix of riparian and upland dispersal habitats. Breeding aquatic habitats include pools and backwaters within streams, creeks, ponds, marshes, springs, sag ponds, dune ponds, lagoons, and artificial impoundments including stock ponds. The breeding period is from November to March. Beginning with the first rains of fall, CRLF may make overland excursions through upland habitats. Most of these overland movements occur at night. CRLF may move distances up to 1.6 kilometers throughout one wet season. CRLF rest and forage in riparian vegetation. CRLF disperse from their breeding habitat to forage and seek summer habitat if water is not available. Summer habitats include spaces under boulders or rocks and organic debris, such as downed trees or logs; industrial debris; and agricultural features, such as drains, watering troughs, abandoned sheds, or hay-ricks (USFWS, 2002). CRLF requires 11 to 30 weeks of permanent water for larval development (CDFW, 2013).

The USFWS designated approximately 1,636,609 acres of revised critical habitat in 50 units within 27 California counties for CRLF, effective August 16, 2010 (75 FR 12815-12959). The primary constituent elements essential to the conservation of the species include: (1) Space for individual and population growth and for normal behavior; (2) Food, water, air, light, minerals, or other nutritional or physiological requirements; (3) Cover or shelter; (4) Sites for breeding, reproduction, or rearing (or development) of offspring; and (5) Habitats that are protected from disturbance or are representative of the historical, geographical, and ecological distributions of a species.

The project site occurs within critical habitat for CRLF (**Figure 7**). The project site occurs within the 34,952-acre SNM-1, Cahill Ridge unit. SNM-1 contains the features that are essential for the conservation of the species including the following primary constituent elements: aquatic habitat for breeding and non-breeding activities, and upland habitat for foraging and dispersal activities. SNM-1 was known to be occupied at the time of listing and is currently occupied. The unit contains high-quality permanent and ephemeral aquatic habitats consisting of ponds and streams surrounded by riparian and emergent vegetation that provides for breeding and upland areas for dispersal, shelter, and food (75 FR 12815-12959).

There are 18 CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). Two of the 18 occurrence are mapped within the vicinity of the project site. One occurrence is from 2006 and abuts the southern portion of the project site (CNDDDB occurrence number 976). The record states that six adult CRLF were captured in a pond with wetland vegetation surrounded by agriculture between Denniston Creek and San Vicente Creek. The other occurrence is from 2006 and abuts the southeastern portion of the project site (CNDDDB occurrence number 38). The record states that approximately five CRLF were heard calling and two were captured within manmade ponds along Denniston Creek.

Denniston Creek, San Vicente Creek, the manmade reservoirs, and the riparian vegetation within the project site have potential breeding and foraging habitat for this species. The project site provides overland movement for this species in habitats occurring within 1.6 kilometers of the aquatic and foraging habitat. This species was not observed during the February 2, 3, 16 and 17, 2010, May 16 and 17, 2011, June 2, 2011, July 17, 2011 and November 13, 2013 biological surveys of the project site. However, CRLF was observed in Denniston Reservoir during dredging activities done by the District under a CDFW SAA in 2009 and 2010. Maintaining Denniston Reservoir at a larger size would provide more edge effect for CRLF and therefore could be beneficial to CRLF habitat.

Prior to commencement of any groundbreaking activities, the mitigation measures identified below shall be implemented. Any additional mitigation measures required by the USFWS through Section 7 consultation or by an ITP from CDFW, as well as mitigation measures described in a SAA, would also be required.

**Recommended Mitigation:**

- At least 14 days prior to the onset of any construction or maintenance activities, the applicant shall submit the name(s) and credentials of biologists who would conduct activities specified in the following measures. An approved biological monitor shall be present on site during all construction activities. Prior to commencement of any groundbreaking activities, all construction personnel will receive training on CRLF and their habitats by an approved biologist.
- Removal of the existing diversion structure and construction of the new diversion structure and pump station within San Vicente Creek and within the riparian vegetation surrounding San

Vicente Creek, installation of the pipeline within the riparian vegetation surrounding San Vicente Creek, and maintenance activities associated with dredging activities to maintain Denniston Reservoir shall be limited to the period of September 1 through October 15, which is after CRLF larval development and before the breeding season. The proposed replacement of the existing pipeline and the installation of the new pipeline within the nonnative annual grassland and all other habitats within 1.6 kilometers of aquatic features shall be limited to the period of March 15 to October 15.

- All new intake structures shall be equipped with an appropriate barrier to prevent CRLF juveniles or tadpoles from being entrained. To the degree cofferdams are needed and flows will be bypassed during construction, flow shall be restored to the affected stream immediately upon completion of work at that location.
- During dredging activities at Denniston Reservoir, any decrease in water surface elevation (WSE) shall be controlled such that WSE does not change at a rate that increases turbidity to Denniston Creek that could be deleterious to aquatic life and/or the likelihood of stranding aquatic life in the manmade reservoir.
- Upon completion of the Section 7 consultation process, the USFWS will consider if an appropriate relocation site exists in the event a need arises to relocate CRLF. The applicant would be required to obtain a biological opinion with an incidental take statement from the USFWS in the event that the USFWS determines that the Proposed Project would result in take of CRLF. If the USFWS approves moving CRLF, the approved biologist will be allowed sufficient time to move them from the work site before work activities begin.
- All BMPs prescribed by the San Mateo County planning office for work within sensitive habitat areas will be implemented to the full extent such as eliminating the use of herbicide or pesticide in a riparian area, protecting native vegetation, minimizing soil compaction, seed or plant temporary vegetation for erosion control, protect down slope drainage courses, streams, and storm drains with hay bales, temporary drainage swales, silt fences, berms or storm drain inlet filters (County of San Mateo Public Works).
- Construction equipment used to remove the existing diversion structure and construct the new diversion structure and pump station along San Vicente Creek and the additional and ongoing dredging of Denniston Reservoir shall be located adjacent to aquatic habitats in upland areas with the least amount of riparian vegetation, to minimize disturbances to the maximum extent practicable.
- All vehicles associated with construction and excavation activities will be clustered within designated staging areas at the end of each work day or when not in use to minimize habitat disturbance and water quality degradation. Before vehicles move from the staging areas at the start of each work day or before they return to this location at the end of each work day, the onsite biological monitor will check under the vehicles and their tires to ensure no listed species are utilizing the equipment as temporary shelter. In addition, the qualified biologist shall inspect the vicinity of the anticipated work area that will support the construction equipment. Any vehicle parked within the project site for more than 15 minutes shall be inspected by the biological

monitor before it is moved to ensure that CRLF have not moved under the vehicle. Fifteen miles per hour speed limits shall be enforced while driving in the project site, including transporting excavated material to the disposal site for the dredging material associated with Denniston Reservoir to the previously identified and used disposal sites within the eucalyptus grove.

- Prior to deposition of fill at the disposal site associated with the eucalyptus grove, the biological monitor shall inspect the areas to verify that CRLF are not present. If any CRLF are present, the excavated material shall not be placed until the individuals leave the area or unless the qualified biologist is permitted by the USFWS to capture and relocate the CRLF. Because CRLF may take refuge in cavity-like and den-like structures such as pipes and may enter stored pipes and become trapped, all construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the biological monitor for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way.

### ***Reptiles***

#### **Western Pond Turtle (WPT; *Actinemys marmorata*)**

Federal Status – None

State Status – Species of Concern

WPT are found along ponds, marshes, rivers, streams, and irrigation ditches with abundant aquatic vegetation. WPT require aquatic habitats with suitable basking sites. Nest sites are often characterized as having gentle slopes less than 15 percent with little vegetation or sandy banks. WPT are found from zero to 1,430 meters (Stebbins, 2003). The WPT prefer pools with rocky or muddy bottoms in woodland, forest, or grassland areas. During summer droughts, WPT aestivate in burrows in soft bottom mud (CaliforniaHerps, 2011). Period of identification for the WPT is March through October. WPT are known throughout California west of the Sierra-Cascade crest, absent from desert regions except along the Mohave River and its tributaries (Stebbins 2003).

There is one CNDDDB record documented for this species within five miles of the project site (CDFW, 2013). The record is from 2005 and is located approximately 4.6 miles northeast of the project site (CNDDDB occurrence number 1223). The record states that one WPT was captured in a pond along San Mateo Creek comprised of oak, bay, pine woodland, and riparian areas. Denniston Creek, San Vicente Creek, the manmade reservoirs, and the riparian vegetation within the project site provide potential habitat for this species. This species was not observed during the February 2, 3, 16 and 17, 2010, May 16 and 17, 2011, June 2, 2011, July 17, 2011 and November 13, 2013 biological surveys of the project site. This species has the potential to occur within the project site.

#### **Recommended Mitigation:**

- Prior to commencement of any groundbreaking activities, all construction personnel will receive training on WPT and the biological monitor will conduct a preconstruction survey for WPT. If

WPT is present, the biologist will be allowed sufficient time to move them from the work site before work activities begin.

- All construction equipment used to remove the existing diversion structure and construct the new diversion structure and pump station along San Vicente Creek and to dredge the manmade reservoir along Denniston Creek shall be located adjacent to aquatic habitats in upland areas with the least amount of riparian vegetation, to the maximum extent practicable.
- Before vehicles move from the staging areas at the start of each work day or before they return to this location at the end of each work day, the biological monitor will check under the vehicles and their tires to ensure no WPT are utilizing the equipment as temporary shelter.

**San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*)**

Federal Status – Endangered

State Status – Endangered, Fully Protected

San Francisco garter snake (SFGS) is found in the vicinity of freshwater marshes, ponds, and slow moving streams. This species prefers dense cover and water depths of at least one foot (CDFW, 2013) and nearby grassland to overwinter in upland areas away from water (Californiaherps, 2011). This species is found in San Mateo County and the extreme northern portion of Santa Cruz County (CDFW, 2013). However, SFGS have not been observed in the project area and sightings in the vicinity are of mixed reliability (WRA, 2005).

There are 13 identified occurrences of SFGS within five miles of the project site (CDFW, 2013). The data states that the information on the occurrences is considered sensitive and the location data is suppressed. Denniston Creek, San Vicente Creek, and the manmade reservoirs provide aquatic habitat for this species. The California annual grassland in the vicinity of the creeks provide upland overwintering habitat for this species. This species was not observed during the February 2, 3, 16 and 17, 2010, May 16 and 17, 2011, June 2, 2011, July 17, 2011 and November 13, 2013 biological surveys of the project site. This species has the potential to occur within the project site.

The same mitigation measure as described above for the CRLF shall be implemented for SFGS. Implementing these measures would reduce potential impacts to SFGS to Less than Significant.

***Mammals***

**Pallid Bat (*Antrozous pallidus*)**

Federal Status – None

State Status – Species of Concern

Pallid bats are found in grassland, shrubland, and woodland habitats from sea level up to mixed conifer forests through 2,000 meters. This species commonly occurs in open, dry habitats with rocky areas for roosting. Other roosts include cliffs, abandoned buildings, bird boxes, and under bridges. This species forages over open ground during the dawn and dusk hours. Pallid bats establish daytime roosts in caves, crevices, mines, large hollow trees, and unoccupied buildings. Pallid bats mate from October through

February and most young are born from April through July (Harris 2000). This species occurs in arid and semi-arid regions across much of the American west, along the Pacific Coast from Canada and Mexico (Arizona-Sonora Desert Museum, 2006-2009).

There are no CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The trees within the riparian vegetation, the eucalyptus grove, and the ruderal/disturbed areas of the project site provide roosting habitat for this species. This species was not observed during the February 2, 3, 16 and 17, 2010, May 16 and 17, 2011, June 2, 2011, July 17, 2011 and November 13, 2013 biological surveys of the project site. This species has the potential to occur within the project site.

No significant habitat trees are scheduled to be impacted by the project itself and therefore no impacts to Pallid bats are anticipated. However, if any trees are proposed for removal, implementing the following measures would reduce potential impacts to SFGS to less than significant.

**Recommended Mitigation:**

- If any trees are proposed for removal, a qualified wildlife biologist shall conduct a focused survey for roosting bats no more than 14 days prior to the anticipated date of tree removal. Trees that contain cavities will be thoroughly investigated for evidence of bat activity. A letter report shall be prepared following the preconstruction survey to document the results. If the preconstruction survey determines that there is no evidence of roosts, then no additional mitigation will be required so long as construction commences within 14 days prior to the preconstruction survey.
- If special status bats are found roosting within any trees slated for removal, the areas shall be demarcated by exclusionary fencing and avoided until a qualified biologist can assure that the bats have vacated.

**San Francisco Dusky-Footed Woodrat (*Neotoma fuscipes annectens*)**

Federal Status – None

State Status –Species of Concern

The San Francisco dusky-footed woodrat is found in riparian areas along streams and rivers. This species requires areas with a mix of brush and trees. This species is known to occur in Alameda, Contra Costa, San Mateo, Santa Clara, Santa Cruz counties (NatureServe, 2011).

There are no CNDDDB records documented for this species within five miles of the project site (CDFW, 2013). The riparian vegetation along Denniston Creek, San Vicente Creek, and the intermittent drainages provide habitat for this species. Though this species was not observed during the February 2, 3, 16 and 17, 2010, May 16 and 17, 2011, June 2, 2011, July 17, 2011 and November 13, 2013 biological surveys of the project site, several wood rat (species indeterminate) nests were noted within the coastal scrub along the pipeline route. This species has the potential to occur within the project site. Implementing the measures below would reduce potential impacts to less than significant.



**Recommended Mitigation:**

- Prior to commencement of any construction activities, a qualified biologist shall conduct a preconstruction survey to determine if active woodrat nests occur within a ten-foot buffer of areas to be cleared of riparian vegetation. Similar surveys shall be conducted in and immediately adjacent to the use of the existing dredge disposal sites. A letter report shall be prepared following the preconstruction survey to document the results. If the preconstruction survey determines that there is no evidence of nests, then no additional mitigation will be required so long as construction commences within 14 days prior to the preconstruction survey.
- If woodrat nests are present and determined to be occupied, each woodrat shall be relocated to suitable habitat in consultation with the CDFW. If young are found within the nest, the nest material shall remain in its existing condition and a ten-foot buffer around the nest shall be established. No work shall occur within the ten-foot buffer until a qualified biologist determines that the young have been weaned (up to six weeks from birth), at which point the biologist should dismantle and relocate the nest to an area with suitable habitat that would not be impacted by the Proposed Project.

**Migratory Birds and Bird of Prey**

Fish and Game Code 3503.5 protects all birds in the orders Falconiformes and Strigiformes (collectively known as birds of prey). The MBTA protects migratory birds and other birds of prey. Migratory birds and other birds of prey have the potential to nest within the trees within the riparian vegetation, the eucalyptus grove, and the ruderal/disturbed areas. No birds were observed nesting within the project site during biological surveys. Migratory birds and other birds of prey have the potential to nest within the project site.

**Recommended Mitigation:**

- Should any trees be anticipated for removal, they should be removed between September 16 and March 14, which is outside of the nesting bird season (The nesting bird season is between March 15 and September 15).
- Should removal be required outside of those dates, then a qualified biologist shall conduct a preconstruction survey within 14 days prior to commencement of any construction activities associated with the Proposed Project. A letter report shall be prepared following the preconstruction survey to document the results. If surveys show that there is no evidence of nests, then no additional mitigation will be required so long as construction commences within 14 days prior to the preconstruction survey.
- If any active nests are located within the vicinity of the project site, a buffer zone shall be established around the nests. A qualified biologist shall monitor nests weekly during construction to evaluate potential nesting disturbance by construction activities. The biologist should delimit the buffer zone with construction tape or pin flags within 100 feet of the active nest and maintain the buffer zone until the end of breeding season or the young have fledged. Guidance from the

CDFW will be requested if establishing a 100-foot buffer zone is impractical. Implementing these measures would reduce potential impacts to Less than Significant.

#### 4.5 SUMMARY OF IMPACTS

The Proposed Project would temporarily impact a total of 5.254 acres of terrestrial habitat and 1.38 acres of aquatic habitat. **Table 3** provides a summary of the terrestrial and aquatic habitat types impacted by the Proposed Project.

**TABLE 3**  
HABITAT TYPES BY ACREAGES IMPACTED BY THE PROPOSED PROJECT

Habitat Types	Potential Temporary Impacts <sup>1</sup>	Permanent Impacts <sup>2</sup>
<i>Terrestrial</i>		
California Annual Grassland	0.23	0.00
Coastal Prairie	0.08	0.00
Coastal Scrub	1.94	0.00
Riparian Vegetation	0.28	0.00
Eucalyptus Grove	0.05	1.06
Agriculture	0.004	0.00
Ruderal/Disturbed Areas	2.67	2.31
<b>Subtotal</b>	<b>5.254</b>	<b>3.37</b>
<i>Aquatic<sup>3</sup></i>		
Perennial Creek (San Vicente Creek at POD)	0.00	0.04
Perennial Creek (Unnamed at Bridgeport Dr.)	0.01	0.00
Intermittent Drainage	0.01	0.00
Reservoir (Denniston Reservoir the POD)	0.94	0.03
Seasonal Wetland	0.00	0.00
<b>Subtotal</b>	<b>1.38</b>	<b>0.07</b>
<b>Total</b>	<b>6.214</b>	<b>3.44</b>

<sup>1</sup>These acreages represent the temporary impacts from the Proposed Project. Once completed, each area will be restored.

<sup>2</sup>These acreages represent only the habitat which will be permanently lost through construction of the Proposed Project.

<sup>3</sup>Impacts to the aquatic habitats are approximate. The final acreages of aquatic impacts will be determined through the Sections 404, 401, and 1600 permitting processes.

#### Sensitive Habitats

Development of the Proposed Project has the potential to impact sensitive habitat, including San Vicente Creek and Denniston Creek, the riparian vegetation of San Vicente Creek and Denniston Creek, one seasonal wetland along the pipeline route from San Vicente Creek to the Denniston pump station, and two intermittent ephemeral drainages along the same pipeline route. The CDFW and the County General Plan consider aquatic habitat, riparian habitat, and tributaries to these habitats to be sensitive biological communities. The Proposed Project could temporarily impact up to 0.28 acres of riparian vegetation and

aquatic habitat in Denniston Creek and San Vicente Creek and permanently impact up to 0.04 acres in San Vicente Creek.

Impacts would occur to Denniston Creek through maintenance activities associated with removal of sediment to expand the manmade reservoir upstream and adjacent to the existing reservoir. Impacts to San Vicente Creek will occur through construction of the new diversion structure and pump station, removal of the existing structure within the channel and the surrounding riparian vegetation, and installation/upgrade of the pipeline within the riparian habitat.

Impacts may also occur to San Vicente Creek through ongoing diversion of surface water from the creek. Stream flow has the potential to be considerably reduced downstream from the POD. However, impacts to the riparian vegetation along San Vicente Creek will be less than significant, as San Vicente Creek will continue to receive natural run-off downstream of the diversion, groundwater from the water table downstream of the diversion, and year-round coastal fog that provides a source of water to the riparian vegetation throughout the watershed. In a November 13, 2013 biological survey, which was conducted late in the season of a very dry year, the flow in San Vicente Creek was enough to sustain both Upper and Lower San Vicente reservoirs, keep the channel wetted beyond the San Vicente POD, and still have visible flow at the mouth of the Creek at its terminus into the Pacific Ocean. Sections of the creek were observed to be only wetted, which is the current permit requirement for San Vicente Creek below the POD. However by the time it reached the Pacific Ocean, there was some visible flow in the creek, likely from groundwater exfiltration to the creek. Even if the full 2.0 cfs permitted under Permit 15882 was diverted from San Vicente Creek, which is unlikely to occur under the Proposed Project as diversions will be balanced between both San Vicente Creek and Denniston Creek, there would still be enough water available to sustain riparian habitat due to incoming natural run-off, groundwater exfiltration, and coastal fog. No impacts to biological resources will occur above the POD on San Vicente Creek.

Riparian habitat on Denniston Creek is similar to that on San Vicente Creek, and would be maintained by natural run-off downstream of the POD, groundwater input from the water table, and year-round coastal fog. Although water diversions as a result of the Proposed Project would reduce stream flow downstream of the POD, the riparian habitat would not be adversely impacted. In the November 13, 2013 biological survey, which was late in the season of a very dry year, water flow was occurring all the way to the mouth of the creek below Denniston Reservoir. This is an example of Denniston Creek at its lowest flow, and yet water was still available to support the existing riparian habitat. Even if the full 2.0 cfs permitted under Permit 15882 was diverted from Denniston Creek, which is unlikely to occur under the Proposed Project as diversions will be balanced between both San Vicente Creek and Denniston Creek, there would still be enough water available to sustain riparian habitat due to incoming natural run-off, groundwater exfiltration, and coastal fog. No impacts to biological resources will occur above Denniston Reservoir.

A Section 1602 SAA shall be obtained from CDFW and the appropriate County permit under the LCP shall be obtained for impacts to riparian habitat from the replacement of the existing “temporary”

diversion dam and intake structure at the POD on San Vicente Creek with a permanent structure. The new permanent structure must comply with the CDFW Manual or the NMFS Guidelines including the intake screen area, the creek slope in the area below the diversion structure, and the materials used to construct the intake structure. A Section 1602 SAA may also be needed for potential impacts to Denniston Creek and to two intermittent ephemeral drainages from the construction of the pipeline. All conditions and requirements of the permits shall be adhered to.

Water diversion is an allowable use under the LCP. The in-stream impacts may also require a 404 permit from USACE. At minimum, the policies identified within the sensitive habitat component of the County's LCP and the General Plan shall be followed and impacts to riparian habitat and perennial creeks shall be restored, replaced, or enhanced. An LCP permit is likely to be required from the construction of the improved POD on San Vicente Creek and the pipelines linking the diversion to the existing Denniston pumping station adjacent to Denniston Reservoir.

Prior to commencement of any construction activities, CCWD must comply with the policies identified within the sensitive habitat component of the LCP and the General Plan by obtaining a CDP from the County.

All riparian habitat impacted shall be replaced or enhanced in the area of impact or, if infeasible, within reasonable proximity to the project site as identified in the Riparian Restoration and Monitoring Plan (RRMP). The RRMP shall include performance criteria and monitoring standards to measure success of the restoration. Examples of restoration include, but are not limited to, re-contouring of the creek to offset the impacts from the current inefficient diversion and the related undercutting of the stream channel which has occurred, the replanting of native vegetation to offset any unavoidable removal of trees or understory and possible measures designed to avoid further erosion and the removal of debris from both creeks and their associated riparian habitat. If additional measures are required in the State or Federal Permitting process then they shall also be followed and included in the RRMP.

Construction activities associated with the Proposed Project would impact an estimated 0.07 acres of potential waters of the U.S. through the removal of the existing diversion structure and the construction of the new diversion structure and pump station within the manmade reservoir along San Vicente Creek. Maintenance activities associated with expanding the manmade reservoir through dredging along Denniston Creek would impact an estimated 0.03 acres; however, dredging activities within waters of the U.S. may not be subject to Section 404 of the Clean Water Act (33 CFR 232.2(3)(i-iii)). Impacts to waters of the U.S. subject to USACE jurisdiction are considered preliminary until the USACE verifies the findings. The exact acreage of jurisdictional wetlands would be determined through the Section 404 Clean Water Act process upon completion of finalized design of in-stream structures. Prior to commencement of any construction activity, a Section 404 Clean Water Act Permit from the USACE for impacts to jurisdictional wetlands and waters of the United States must be obtained.

All construction activities must comply with appropriate measures to prevent discharge of pollutants to surface waters during construction. This shall include complying with the State's National Pollution Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Permit) issued by the RWQCB and a Section 401 Permit for impacts to waters of the State. Further, as a condition of the Section 404 Clean Water Act Permit, permanent impacts to jurisdictional waters of the U.S. shall be mitigated on site according to a Mitigation Monitoring and Reporting Plan (MMRP). Unavoidable impacts to waters of the U.S. shall be mitigated consistent with the existing agreements between the USACE and the USEPA with an emphasis on for onsite restoration to ensure a no net loss to waters of the U.S. and of the State. The Proposed Project will avoid the 0.01 acre seasonal wetland during construction of the pipeline.

Two dredge disposal sites already identified as part of the CCWD easements shall be the site of the disposal of the dredged material located at the eucalyptus groves. Use of these sites has the potential to impact biological resources because this area provides potential habitat for the CRLF, possibly the SFGS and the dusky wood rat. In addition the material could contain contaminants that could seep into the soil.

Based on previous analytical work done for the Peninsula Open Space Trust, the accumulated dredge material previously stored at these disposal sites shows no hazardous contaminants and none of the material would require disposal at a hazardous material disposal site (EKI, 2013). It is anticipated that continued dredging, as proposed, would not result in any significant impacts as no upstream changes are anticipated which would cause contaminants to be deposited into Denniston Reservoir. As a precaution, prior to dredging, soils to be removed will be sampled and tested for contaminants. If sampling of the dredged materials indicates that soils may constitute hazardous materials, then they shall be disposed of in accordance with corresponding California statutory regulations at an approved dredge disposal site. Recycleworks.org is a program of San Mateo County and is a guide for building contractors on how to properly dispose of hazardous materials.

Dredging shall generally be from the dam side and along the road in order to minimize impacts to the surrounding environment. To the maximum degree feasible, the dredging shall be done in a manner that restores an upstream channel of Denniston Creek coming into the reservoir. Some additional dredging is anticipated along the west side of the reservoir and this dredging shall be conducted in a manner that minimizes impacts to the surrounding vegetation. The same path shall be used annually to minimize impacts in future years. If any trees are to be removed, they shall be replaced at a three to one ratio in the vicinity of the reservoir to be consistent with the RRMP. All dredged material will be disposed of at one of the two existing on-site disposal areas if sampling indicates that soils do not constitute hazardous materials, as has previously been done in the past.

### **Critical Habitat**

The approximately 35.50-acre project site lies within designated critical habitat (**Figure 7**) unit SNM-1 for CRLF. Approximately 6.214 acres of the 35.50-acre project site would be temporarily impacted and

3.44 acres would be permanently impacted by the Proposed Project. Critical habitat unit SNM-1 for CRLF comprises a total of 34,952 acres. Trenching activities associated with the replacement of existing pipelines and the installation of the new pipelines would be temporary and all habitats would be restored back to their existing condition. All wetland habitat is being avoided by design. Based on the limited size of critical habitat affected by the Proposed Project, much of which would be temporary, and the measures required to reduce project-related impacts to CRLF during construction activities and consultation with the USFWS which will occur, impacts to critical habitat is considered less than significant.

## 5.0 REFERENCES

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## ***ATTACHMENTS***

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# ***ATTACHMENT 1***

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## ***SPECIES SEARCHES***

# CNPS *California Native Plant Society* Rare and Endangered Plant Inventory

## Plant List

5 matches found. Click on scientific name for details

### Search Criteria

Found in Quad 37122D4

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
<a href="#">Astragalus pycnostachyus var. pycnostachyus</a>	coastal marsh milk-vetch	Fabaceae	perennial herb	1B.2	S2.2	G2T2
<a href="#">Horkelia cuneata var. sericea</a>	Kellogg's horkelia	Rosaceae	perennial herb	1B.1	S2?	G4T2
<a href="#">Lupinus arboreus var. eximius</a>	San Mateo tree lupine	Fabaceae	perennial evergreen shrub	3.2	S2.2	G2Q
<a href="#">Plagiobothrys chorisianus var. chorisianus</a>	Choris' popcorn-flower	Boraginaceae	annual herb	1B.2	S2.2	G3T2Q
<a href="#">Polemonium carneum</a>	Oregon polemonium	Polemoniaceae	perennial herb	2B.2	S1	G4

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# CNPS *California Native Plant Society* Rare and Endangered Plant Inventory

## Plant List

42 matches found. Click on scientific name for details

Search Criteria

Found in Quad 37122E4

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
<a href="#"><u><i>Allium peninsulare</i> var. <i>franciscanum</i></u></a>	Franciscan onion	Alliaceae	perennial bulbiferous herb	1B.2	S2.2	G5T2
<a href="#"><u><i>Amsinckia lunaris</i></u></a>	bent-flowered fiddleneck	Boraginaceae	annual herb	1B.2	S2?	G2?
<a href="#"><u><i>Arabis blepharophylla</i></u></a>	coast rockcress	Brassicaceae	perennial herb	4.3	S3.3?	G3
<a href="#"><u><i>Arctostaphylos andersonii</i></u></a>	Anderson's manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2?	G2
<a href="#"><u><i>Arctostaphylos montaraensis</i></u></a>	Montara manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2.2	G2
<a href="#"><u><i>Arctostaphylos regismontana</i></u></a>	Kings Mountain manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2.2	G2
<a href="#"><u><i>Astragalus nuttallii</i> var. <i>nuttallii</i></u></a>	ocean bluff milk-vetch	Fabaceae	perennial herb	4.2	S3.2	G3T3
<a href="#"><u><i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i></u></a>	coastal marsh milk-vetch	Fabaceae	perennial herb	1B.2	S2.2	G2T2
<a href="#"><u><i>Castilleja ambigua</i> var. <i>ambigua</i></u></a>	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	4.2	S3	G4T3T4
<a href="#"><u><i>Centromadia parryi</i> ssp. <i>parryi</i></u></a>	pappose tarplant	Asteraceae	annual herb	1B.2	S1	G3T1
<a href="#"><u><i>Chorizanthe cuspidata</i> var. <i>cuspidata</i></u></a>	San Francisco Bay spineflower	Polygonaceae	annual herb	1B.2	S2.2	G2T2
<a href="#"><u><i>Cirsium andrewsii</i></u></a>	Franciscan thistle	Asteraceae	perennial herb	1B.2	S2.2	G2
<a href="#"><u><i>Collinsia multicolor</i></u></a>	San Francisco collinsia	Plantaginaceae	annual herb	1B.2	S2.2	G2
<a href="#"><u><i>Cypripedium fasciculatum</i></u></a>	clustered lady's-slipper	Orchidaceae	perennial rhizomatous herb	4.2	S3.2	G4
<a href="#"><u><i>Dirca occidentalis</i></u></a>	western leatherwood	Thymelaeaceae	perennial deciduous shrub	1B.2	S2S3	G2G3
<a href="#"><u><i>Elymus californicus</i></u></a>	California bottle-brush grass	Poaceae	perennial herb	4.3	S3.3	G3
<a href="#"><u><i>Eriophyllum latilobum</i></u></a>	San Mateo woolly sunflower	Asteraceae	perennial herb	1B.1	S1	G1
<a href="#"><u><i>Erysimum franciscanum</i></u></a>	San Francisco wallflower	Brassicaceae	perennial herb	4.2	S3.2	G3

<a href="#"><u>Fritillaria biflora var. ineziana</u></a>	Hillsborough chocolate lily	Liliaceae	perennial bulbiferous herb	1B.1	S1	G1QT1Q
<a href="#"><u>Fritillaria lanceolata var. tristulis</u></a>	Marin checker lily	Liliaceae	perennial bulbiferous herb	1B.1	S2	G5T2
<a href="#"><u>Fritillaria liliacea</u></a>	fragrant fritillary	Liliaceae	perennial bulbiferous herb	1B.2	S2	G2
<a href="#"><u>Grindelia hirsutula var. maritima</u></a>	San Francisco gumplant	Asteraceae	perennial herb	3.2	S1	G5T1Q
<a href="#"><u>Hesperivax sparsiflora var. brevifolia</u></a>	short-leaved evax	Asteraceae	annual herb	1B.2	S2S3	G4T2T3
<a href="#"><u>Horkelia marinensis</u></a>	Point Reyes horkelia	Rosaceae	perennial herb	1B.2	S2.2	G2
<a href="#"><u>Iris longipetala</u></a>	coast iris	Iridaceae	perennial rhizomatous herb	4.2	S3.2	G3
<a href="#"><u>Leptosiphon croceus</u></a>	coast yellow leptosiphon	Polemoniaceae	annual herb	1B.1	S1	G1
<a href="#"><u>Leptosiphon rosaceus</u></a>	rose leptosiphon	Polemoniaceae	annual herb	1B.1	S1	G1
<a href="#"><u>Lessingia arachnoidea</u></a>	Crystal Springs lessingia	Asteraceae	annual herb	1B.2	S1	G1
<a href="#"><u>Lessingia hololeuca</u></a>	woolly-headed lessingia	Asteraceae	annual herb	3	S3	G3
<a href="#"><u>Lupinus arboreus var. eximius</u></a>	San Mateo tree lupine	Fabaceae	perennial evergreen shrub	3.2	S2.2	G2Q
<a href="#"><u>Malacothamnus aboriginum</u></a>	Indian Valley bush-mallow	Malvaceae	perennial deciduous shrub	1B.2	S2	G2
<a href="#"><u>Malacothamnus arcuatus</u></a>	arcuate bush-mallow	Malvaceae	perennial evergreen shrub	1B.2	S2.2	G2Q
<a href="#"><u>Malacothamnus davidsonii</u></a>	Davidson's bush-mallow	Malvaceae	perennial deciduous shrub	1B.2	S2	G2
<a href="#"><u>Malacothamnus hallii</u></a>	Hall's bush-mallow	Malvaceae	perennial evergreen shrub	1B.2	S2	G2Q
<a href="#"><u>Monolopia gracilens</u></a>	woodland woollythreads	Asteraceae	annual herb	1B.2	S2S3	G2G3
<a href="#"><u>Pentachaeta bellidiflora</u></a>	white-rayed pentachaeta	Asteraceae	annual herb	1B.1	S1	G1
<a href="#"><u>Plagiobothrys chorisianus var. chorisianus</u></a>	Choris' popcorn-flower	Boraginaceae	annual herb	1B.2	S2.2	G3T2Q
<a href="#"><u>Polemonium carneum</u></a>	Oregon polemonium	Polemoniaceae	perennial herb	2B.2	S1	G4
<a href="#"><u>Potentilla hickmanii</u></a>	Hickman's cinquefoil	Rosaceae	perennial herb	1B.1	S1	G1
<a href="#"><u>Silene verecunda ssp. verecunda</u></a>	San Francisco campion	Caryophyllaceae	perennial herb	1B.2	S2.2	G5T2
<a href="#"><u>Triphysaria floribunda</u></a>	San Francisco owl's-clover	Orobanchaceae	annual herb	1B.2	S2.2	G2
<a href="#"><u>Triquetrella californica</u></a>	coastal triquetrella	Pottiaceae	moss	1B.2	S1	G1

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Selected Elements by Scientific Name  
California Department of Fish and Wildlife  
California Natural Diversity Database



Query Criteria: Quad is (Montara Mountain (3712254) or Half Moon Bay (3712244))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Allium peninsulare</i> var. <i>franciscanum</i> Franciscan onion	PMLIL021R1	None	None	G5T2	S2.2	1B.2
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G5	S3	SSC
<i>Arctostaphylos montaraensis</i> Montara manzanita	PDERI042W0	None	None	G2	S2.2	1B.2
<i>Arctostaphylos regismontana</i> Kings Mountain manzanita	PDERI041C0	None	None	G2	S2.2	1B.2
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i> coastal marsh milk-vetch	PDFAB0F7B2	None	None	G2T2	S2.2	1B.2
<i>Callophrys mossii bayensis</i> San Bruno elfin butterfly	IILEPE2202	Endangered	None	G4T1	S1	
<i>Centromadia parryi</i> ssp. <i>parryi</i> pappose tarplant	PDAST4R0P2	None	None	G3T1	S1	1B.2
<i>Chorizanthe cuspidata</i> var. <i>cuspidata</i> San Francisco Bay spineflower	PDPGN04081	None	None	G2T2	S2.2	1B.2
<i>Cirsium andrewsii</i> Franciscan thistle	PDAST2E050	None	None	G2	S2.2	1B.2
<i>Collinsia multicolor</i> San Francisco collinsia	PDSCR0H0B0	None	None	G2	S2.2	1B.2
<i>Danaus plexippus</i> monarch butterfly	IILEPP2010	None	None	G5	S3	
<i>Dirca occidentalis</i> western leatherwood	PDTHY03010	None	None	G2G3	S2S3	1B.2
<i>Emys marmorata</i> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<i>Eriophyllum latilobum</i> San Mateo woolly sunflower	PDAST3N060	Endangered	Endangered	G1	S1	1B.1
<i>Falco columbarius</i> merlin	ABNKD06030	None	None	G5	S3	WL
<i>Fritillaria biflora</i> var. <i>ineziana</i> Hillsborough chocolate lily	PMLIL0V031	None	None	G1QT1Q	S1	1B.1
<i>Fritillaria liliacea</i> fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
<i>Geothlypis trichas sinuosa</i> saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T2	S2	SSC
<i>Grindelia hirsutula</i> var. <i>maritima</i> San Francisco gumplant	PDAST470D3	None	None	G5T1Q	S1	3.2
<i>Horkelia cuneata</i> var. <i>sericea</i> Kellogg's horkelia	PDROS0W043	None	None	G4T2	S2?	1B.1



Selected Elements by Scientific Name  
California Department of Fish and Wildlife  
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b><i>Horkelia marinensis</i></b> Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2.2	1B.2
<b><i>Ischnura gemina</i></b> San Francisco forktail damselfly	IIDOD72010	None	None	G2	S2	
<b><i>Lasiurus cinereus</i></b> hoary bat	AMACC05030	None	None	G5	S4?	
<b><i>Leptosiphon croceus</i></b> coast yellow leptosiphon	PDPLM09170	None	None	G1	S1	1B.1
<b><i>Leptosiphon rosaceus</i></b> rose leptosiphon	PDPLM09180	None	None	G1	S1	1B.1
<b><i>Lessingia arachnoidea</i></b> Crystal Springs lessingia	PDAST5S0C0	None	None	G1	S1	1B.2
<b><i>Lichnanthe ursina</i></b> bumblebee scarab beetle	IICOL67020	None	None	G2	S2	
<b><i>Malacothamnus aboriginum</i></b> Indian Valley bush-mallow	PDMAL0Q020	None	None	G2	S2	1B.2
<b><i>Malacothamnus arcuatus</i></b> arcuate bush-mallow	PDMAL0Q0E0	None	None	G2Q	S2.2	1B.2
<b><i>Malacothamnus davidsonii</i></b> Davidson's bush-mallow	PDMAL0Q040	None	None	G2	S2	1B.2
<b><i>Malacothamnus hallii</i></b> Hall's bush-mallow	PDMAL0Q0F0	None	None	G2Q	S2	1B.2
<b><i>Melospiza melodia pusillula</i></b> Alameda song sparrow	ABPBXA301S	None	None	G5T2?	S2?	SSC
<b><i>Monolopia gracilens</i></b> woodland woollythreads	PDAST6G010	None	None	G2G3	S2S3	1B.2
<b><i>Myotis thysanodes</i></b> fringed myotis	AMACC01090	None	None	G4	S4	
<b><i>Neotoma fuscipes annectens</i></b> San Francisco dusky-footed woodrat	AMAFF08082	None	None	G5T2T3	S2S3	SSC
<b>Northern Coastal Salt Marsh</b> Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
<b>Northern Maritime Chaparral</b> Northern Maritime Chaparral	CTT37C10CA	None	None	G1	S1.2	
<b><i>Nyctinomops macrotis</i></b> big free-tailed bat	AMACD04020	None	None	G5	S2	SSC
<b><i>Oncorhynchus mykiss irideus</i></b> steelhead - central California coast DPS	AFCHA0209G	Threatened	None	G5T2Q	S2	
<b><i>Pentachaeta bellidiflora</i></b> white-rayed pentachaeta	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
<b><i>Plagiobothrys chorisianus var. chorisianus</i></b> Choris' popcornflower	PDBOR0V061	None	None	G3T2Q	S2.2	1B.2



Selected Elements by Scientific Name  
California Department of Fish and Wildlife  
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b><i>Plebejus icarioides missionensis</i></b> Mission blue butterfly	IILEPG801A	Endangered	None	G5T1	S1	
<b><i>Polemonium carneum</i></b> Oregon polemonium	PDPLM0E050	None	None	G4	S1	2B.2
<b><i>Potentilla hickmanii</i></b> Hickman's cinquefoil	PDROS1B0U0	Endangered	Endangered	G1	S1	1B.1
<b><i>Rallus longirostris obsoletus</i></b> California clapper rail	ABNME05016	Endangered	Endangered	G5T1	S1	FP
<b><i>Rana draytonii</i></b> California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
<b><i>Serpentine Bunchgrass</i></b> Serpentine Bunchgrass	CTT42130CA	None	None	G2	S2.2	
<b><i>Silene verecunda ssp. verecunda</i></b> San Francisco campion	PDCAR0U213	None	None	G5T2	S2.2	1B.2
<b><i>Speyeria zerene myrtleae</i></b> Myrtle's silverspot butterfly	IILEPJ608C	Endangered	None	G5T1	S1	
<b><i>Spirinchus thaleichthys</i></b> longfin smelt	AFCHB03010	None	Threatened	G5	S1	SSC
<b><i>Taxidea taxus</i></b> American badger	AMAJF04010	None	None	G5	S4	SSC
<b><i>Thamnophis sirtalis tetrataenia</i></b> San Francisco garter snake	ARADB3613B	Endangered	Endangered	G5T2	S2	FP
<b><i>Triphysaria floribunda</i></b> San Francisco owl's-clover	PDSCR2T010	None	None	G2	S2.2	1B.2
<b><i>Triquetrella californica</i></b> coastal triquetrella	NBMUS7S010	None	None	G1	S1	1B.2
<b><i>Valley Needlegrass Grassland</i></b> Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	

Record Count: 55

# U.S. Fish & Wildlife Service

## Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in  
or may be Affected by Projects in the Counties and/or  
U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 131125013151

Database Last Updated: September 18, 2011

### Quad Lists

#### Listed Species

##### Invertebrates

- Haliotes cracherodii  
black abalone (E) (NMFS)
- Haliotes sorenseni  
white abalone (E) (NMFS)
- Icaricia icarioides missionensis  
mission blue butterfly (E)
- Speyeria zerene myrtleae  
Myrtle's silverspot butterfly (E)

##### Fish

- Eucyclogobius newberryi  
tidewater goby (E)
- Hypomesus transpacificus  
delta smelt (T)
- Oncorhynchus kisutch  
coho salmon - central CA coast (E) (NMFS)  
Critical habitat, coho salmon - central CA coast (X) (NMFS)
- Oncorhynchus mykiss  
Central California Coastal steelhead (T) (NMFS)  
Central Valley steelhead (T) (NMFS)  
Critical habitat, Central California coastal steelhead (X) (NMFS)

##### Amphibians

- Rana draytonii  
California red-legged frog (T)  
Critical habitat, California red-legged frog (X)

##### Reptiles

- Caretta caretta  
loggerhead turtle (T) (NMFS)
- Chelonia mydas (incl. agassizi)  
green turtle (T) (NMFS)
- Dermochelys coriacea  
leatherback turtle (E) (NMFS)
- Lepidochelys olivacea  
olive (=Pacific) ridley sea turtle (T) (NMFS)
- Thamnophis sirtalis tetrataenia  
San Francisco garter snake (E)

##### Birds

- Brachyramphus marmoratus

Critical habitat, marbled murrelet (X)  
marbled murrelet (T)

Charadrius alexandrinus nivosus  
Critical habitat, western snowy plover (X)  
western snowy plover (T)

Diomedea albatrus  
short-tailed albatross (E)

Pelecanus occidentalis californicus  
California brown pelican (E)

Rallus longirostris obsoletus  
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni  
California least tern (E)

## Mammals

Arctocephalus townsendi  
Guadalupe fur seal (T) (NMFS)

Balaenoptera borealis  
sei whale (E) (NMFS)

Balaenoptera musculus  
blue whale (E) (NMFS)

Balaenoptera physalus  
finback (=fin) whale (E) (NMFS)

Enhydra lutris nereis  
southern sea otter (T)

Eubalaena (=Balaena) glacialis  
right whale (E) (NMFS)

Eumetopias jubatus  
Steller (=northern) sea-lion (T) (NMFS)

Physeter catodon (=macrocephalus)  
sperm whale (E) (NMFS)

Reithrodontomys raviventris  
salt marsh harvest mouse (E)

## Plants

Eriophyllum latilobum  
San Mateo woolly sunflower (E)

Pentachaeta bellidiflora  
white-rayed pentachaeta (E)

Potentilla hickmanii  
Hickman's potentilla (=cinquefoil) (E)

## Quads Containing Listed, Proposed or Candidate Species:

HALF MOON BAY (429B)

MONTARA MOUNTAIN (448C)

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## County Lists

### San Mateo County

#### Listed Species

##### Invertebrates

Branchinecta lynchi  
vernal pool fairy shrimp (T)

Euphydryas editha bayensis  
 bay checkerspot butterfly (T)  
 Critical habitat, bay checkerspot butterfly (X)

Haliotes cracherodii  
 black abalone (E) (NMFS)

Haliotes sorenseni  
 white abalone (E) (NMFS)

Icaricia icarioides missionensis  
 mission blue butterfly (E)

Lepidurus packardii  
 vernal pool tadpole shrimp (E)

Speyeria callippe callippe  
 callippe silverspot butterfly (E)

Speyeria zerene myrtleae  
 Myrtle's silverspot butterfly (E)

## Fish

Acipenser medirostris  
 green sturgeon (T) (NMFS)

Eucyclogobius newberryi  
 critical habitat, tidewater goby (X)  
 tidewater goby (E)

Hypomesus transpacificus  
 delta smelt (T)

Oncorhynchus kisutch  
 coho salmon - central CA coast (E) (NMFS)  
 Critical habitat, coho salmon - central CA coast (X) (NMFS)

Oncorhynchus mykiss  
 Central California Coastal steelhead (T) (NMFS)  
 Central Valley steelhead (T) (NMFS)  
 Critical habitat, Central California coastal steelhead (X) (NMFS)

Oncorhynchus tshawytscha  
 Central Valley spring-run chinook salmon (T) (NMFS)  
 winter-run chinook salmon, Sacramento River (E) (NMFS)

## Amphibians

Ambystoma californiense  
 California tiger salamander, central population (T)

Rana draytonii  
 California red-legged frog (T)  
 Critical habitat California red-legged frog (X)

Critical habitat, California red legged frog (X)

## Reptiles

- Caretta caretta*  
loggerhead turtle (T) (NMFS)
- Chelonia mydas* (incl. *agassizi*)  
green turtle (T) (NMFS)
- Dermochelys coriacea*  
leatherback turtle (E) (NMFS)
- Lepidochelys olivacea*  
olive (=Pacific) ridley sea turtle (T) (NMFS)
- Masticophis lateralis euryxanthus*  
Alameda whipsnake [=striped racer] (T)  
Critical habitat, Alameda whipsnake (X)
- Thamnophis sirtalis tetrataenia*  
San Francisco garter snake (E)

## Birds

- Brachyramphus marmoratus*  
Critical habitat, marbled murrelet (X)  
marbled murrelet (T)
- Charadrius alexandrinus nivosus*  
Critical habitat, western snowy plover (X)  
western snowy plover (T)
- Diomedea albatrus*  
short-tailed albatross (E)
- Pelecanus occidentalis californicus*  
California brown pelican (E)
- Rallus longirostris obsoletus*  
California clapper rail (E)
- Sternula antillarum* (=Sterna, =albifrons) browni  
California least tern (E)

## Mammals

- Arctocephalus townsendi*  
Guadalupe fur seal (T) (NMFS)
- Balaenoptera borealis*  
sei whale (E) (NMFS)
- Balaenoptera musculus*  
blue whale (E) (NMFS)



*Balaena glacialis* (E) (NMFS)

*Balaenoptera physalus*  
finback (=fin) whale (E) (NMFS)

*Enhydra lutris nereis*  
southern sea otter (T)

*Eubalaena (=Balaena) glacialis*  
right whale (E) (NMFS)

*Eumetopias jubatus*  
Steller (=northern) sea-lion (T) (NMFS)

*Physeter catodon (=macrocephalus)*  
sperm whale (E) (NMFS)

*Reithrodontomys raviventris*  
salt marsh harvest mouse (E)

## Plants

*Acanthomintha duttonii*  
San Mateo thornmint (E)

*Arctostaphylos hookeri* ssp. *ravenii*  
Presidio (=Raven's) manzanita (E)

*Chorizanthe robusta* var. *robusta*  
robust spineflower (E)

*Cirsium fontinale* var. *fontinale*  
fountain thistle (E)

*Cupressus abramsiana*  
Santa Cruz cypress (E)

*Eriophyllum latilobum*  
San Mateo woolly sunflower (E)

*Hesperolinon congestum*  
Marin dwarf-flax (=western flax) (T)

*Lasthenia conjugens*  
Contra Costa goldfields (E)

*Layia carnosa*  
beach layia (E)

*Lessingia germanorum*  
San Francisco lessingia (E)

*Pentstemon bellidiflorus*

*Pentachaeta demissa*  
white-rayed pentachaeta (E)

*Potentilla hickmanii*  
Hickman's potentilla (=cinquefoil) (E)

*Suaeda californica*  
California sea blite (E)

*Trifolium amoenum*  
showy Indian clover (E)

## Proposed Species

### Plants

*Arctostaphylos Franciscana*  
Critical Habitat, Franciscan Manzanita (X)

## Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

## Important Information About Your Species List

### How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

### Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

## Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our [Protocol](#) and [Recovery Permits](#) pages.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

## Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.

During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

## Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed

dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal

Regulations (50 CFR 17.95). See our [Map Room](#) page.

## Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

## Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts.

[More info](#)

## Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

## Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be February 23, 2014.

# ***ATTACHMENT 2***

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## ***VASCULAR PLANT CHECKLIST***

Vascular Plant Check List  
Coastside Water District  
May 16, 17 and July 17, 2011

\* Denotes non-native species

**FERNS AND FERN ALLIES**

BLECHNACEAE

*Woodwardia fimbriata* (giant chain fern)

DENNSTAEDTIACEAE

*Pteridium aquilinum* var. *pubescens* (bracken fern)

DRYOPTERIDACEAE

*Dryopteris arguta* (wood fern)  
*Polystichum munitum* (sword fern)

EQUISETACEAE

*Equisetum telmateia* ssp. *braunii* (giant horsetail)

POLYPODIACEAE

*Polypodium californicum* (California polypody)

PTERIDACEAE

*Pentagramma triangularis* (goldback fern)

**CONIFERS**

CUPRESSACEAE

*Cupressus macrocarpa* (Monterey cypress)

PINACEAE

*Pinus radiata* (Monterey pine)

**FLOWERING PLANTS – DICOTS**

ALISMATACEAE

*Alisma plantago-aquatica* (water plantain)

ANACARDIACEAE

*Toxicodendron diversiloba* (poison oak)

APIACEAE

*Anthriscus caucalis* (bur cheevil)  
*Conium maculatum* (poison hemlock)  
*Daucus carota* (Queen Anne's lace)  
*Daucus pusillus* (rattlesnake weed)  
*Foeniculum vulgare* (fennel)  
*Sanicula bipinnatifida* (purple sanicle)  
*Torilis arvensis* (Field hedge parsley)

APOCYNACEAE

*Vinca major* (periwinkle)

ASTERACEAE

*Achillea millefolium* (yarrow)  
*Achrychaena mollis* (blow-wives)  
*Agoseris grandiflora* (agoseris)

*Anaphalis margaritacea* (pearly everlasting)

*Angelica hendersonii* (Henderson's angelica)

*Anthemis cotula* (dog-fennel)

*Artemisia californica* (California sagebrush)

*Aster chilensis* (Chilean aster)

*Baccharis pilularis* (coyote brush)

*Carduus pycnocephalus* (Italian thistle)

*Chamomilla suaveolens* (pineapple weed)

*Cirsium vulgare* (bull thistle)

*Delairea odorata* (Cape ivy)

*Eriophyllum staechadifolium* (seaside woolly sunflower)

*Gnaphalium luteo-album* (weedy cudweed)

*Gnaphalium purpureum* (purple cudweed)

*Gnaphalium stramineum* (cotton batting plant)

*Heracleum lanatum* (cow parsnip)

*Hypochaeris glabra* (smooth cat's-ear)

*Hypochaeris radicata* (rough cat's-ear)

*Lactuca serriola* (prickly lettuce)

*Leontodon taraxicoides* (hawkbit)

*Madia sativa* (coast tarweed)

*Madia* sp. (Tarweed)

*Matricaria matricarioides* (pineapple weed)

*Picris echinoides* (bristly ox-tongue)

*Senecio vulgaris* (common butterweed)

*Silybum marianum* (milk thistle)

*Sonchus asper* (prickly sow thistle)

*Sonchus oleraceus* (common sow thistle)

*Urospermum picroides* (Prickly golden fleece)

*Xanthium strumarium* (cocklebur)

BETULACEAE

*Alnus* sp. (alder)

*Alnus rhombifolia* (white alder)

BORAGINACEAE

*Borago officinalis* (Borage)

*Phaceliacicutaria* (caterpillar phacelia)

BRASSICACEAE

*Brassica nigra* (black mustard)\*

*Brassica oleracea* var. *gemmifera* (Bursel's sprouts)\*

*Brassica rapa* (field mustard)\*

*Capsella bursa-pastoris* (shepherd's purse)

*Cardamine oligosperma* (bittercress)

*Raphanus sativus* (wild radish)\*

*Rorippa nasturtium-aquaticum* (water cress)\*

CAPRIFOLIACEAE

*Sambucus racemosa* var. *racemosa* (Coast red elderberry)

*Symphoricarpos albus* (snowberry)

CARYOPHYLLACEAE

Vascular Plant Check List  
Coastside Water District  
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*Cerastium arvense* (meadow chickweed)\*  
*Cerastium glomeratum* (mouse-ear chickweed)  
*Petrorhagia dubia* (hairypink)  
*Silene gallica* (common catchfly)  
*Spergularia rubra* (red sandspurry)  
*Stellaria media* (common chickweed)\*

CONVOLVULACEAE

*Convolvulus arvensis* (common bindweed)

CORNACEAE

*Cornus sericea* ssp. *occidentalis* (Western dogwood)

CUCURBITACEAE

*Marah fabaceus* (wild cucumber)

ERICACEAE

*Rhododendron* sp. (rhododendron)  
*Vaccinium uliginosum* (huckleberry)

EUPHORBIACEAE

*Chamaesyce maculata* (spotted spurge)  
*Euphorbia helioscopia* (Wartseed)  
*Euphorbia peplus* (Petty spurge)\*

FABACEAE

*Acacia dealbata* (silver wattle)\*  
*Albizia lophantha* (plume acacia)\*  
*Genista monspessulana* (French broom)\*  
*Lathyrus hirsutus* (Caley pea)  
*Lathyrus vestitus* var. *vestitus* (common pacific pea)  
*Lotus corniculatus* (bird's-foot trefoil)  
*Lupinus arboreus* (yellow bush lupine)  
*Medicago polymorpha* (California burclover)  
*Melilotus indicus* (sour clover)  
*Trifolium angustifolium* (Narrow leaved clover)  
*Trifolium campestre* (hop clover)  
*Trifolium dubium* (little hop clover)  
*Trifolium glomeratum* (Clustered clover)  
*Trifolium hirtum* (rose clover)  
*Trifolium repens* (white clover)  
*Trifolium subterraneum* (subterranean clover)  
*Vicia sativa* (vetch)  
*Vicia villosa* (winter vetch)

FAGACEAE

*Quercus agrifolia* (coast live oak)

GERANIACEAE

*Erodium botrys* (long-beaked storksbill)\*  
*Erodium cicutarium* (filaree)\*  
*Erodium moschatum* (whitestem storksbill)\*  
*Geranium dissectum* (cut-leaf geranium)\*  
*Geranium molle* (cranesbill geranium)

LAMIACEAE

*Clinopodium douglasii* (*Yerba buena*)  
*Lamium purpureum* (purple henbit)  
*Mentha pulegium* (pennyroyal)\*  
*Stachys ajugoides* var. *ajugoides* (bugle hedge nettle)  
*Stachys* sp. (hedge nettle)

LAURACEAE

*Umbellularia californica* (California bay)

LYTHRACEAE

*Lythrum hyssopifolium* (hyssop loosestrife)\*

MALVACEAE

*Malva neglecta* (common mallow)  
*Malva parviflora* (cheeseweed)\*  
*Malva pseudolavatera* (Cornish mallow)

MYRSINACEAE

*Anagallis arvensis* (scarlet pimpernel)\*

MYRTACEAE

*Callistemon citrinus* (Crimson bottlebrush)\*  
*Eucalyptus globulus* (Blue gum eucalyptus)\*

ONAGRACEAE

*Camissonia ovata* (sun cup)  
*Epilobium ciliatum* (willowherb)  
*Epilobium densiflorum* (dense-flowered boisduvalia)  
*Oenothera elata* ssp. *hookeri* (Hooker's evening primrose)

OXALIDACEAE

*Oxalis pes-caprae* (Bermuda buttercup)\*

PAPAVERACEAE

*Eschscholzia californica* (California poppy)  
*Fumaria capreolata* (White ramping fumitory)\*

PLANTAGINACEAE

*Kickxia elatine* (sharpleaf cancerwort)\*

POLEMONIACEAE

*Gilia capitata* (blue-head gilia)  
*Navarretia squarrosa* (skunkweed)

POLYGONACEAE

*Polygonum arenastrum* (common knotweed)  
*Rumex acetosella* (sheep sorrel)  
*Rumex crispus* (curly dock)  
*Rumex occidentalis* (western dock)  
*Rumex pulcher* (fiddle dock)

PORTULACACEAE

*Calandrinia ciliata* (red maids)



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*Claytonia perfoliata mexicana* (miner's lettuce)

PRIMULACEAE

*Anagallis arvensis* (scarlet pimpernel)\*

RANUNCULACEAE

*Ranunculus californicus* (California buttercup)

*Ranunculus* sp. (buttercup)

RHAMNACEAE

*Ceanothus thyrsiflorus* (blue blossom)

*Rhamnus californica* (California coffeeberry)

ROSACEAE

*Cotoneaster pannosus* (silverleaf cotoneaster)\*

*Fragaria vesca* (wood strawberry)

*Heteromeles arbutifolia* (toyon)

*Holodiscus discolor* (oceanspray)

*Potentilla anserine* ssp. *pacifica*. (Pacific silverweed)

*Ribes divercatum* var. *pubiflorum* (straggly gooseberry)

*Rosa gymnocarpa* (wood rose)

*Rubus discolor* (Himalayan blackberry)

*Rubus parviflorus* (thimbleberry)

*Rubus ursinus* (California blackberry)

RUBIACEAE

*Galium aparine* (goosegrass)

*Galium porrigens* (climbing bedstraw)

SALICACEAE

*Salix* sp. (willow)

*Salix lasiandra* (Yellow willow)

*Salix lasiolepis* (Arroyo willow)

*Salix stichensis* (Sitka willow)

SCROPHULARIACEAE

*Antirrhinum orontium* (Corn snapdragon)

*Bellardia trixago* (Mediterranean lineseed)

*Castilleja affinis* (valley tassles)

*Mimulus aurantiacus* (sticky monkeyflower)

*Mimulus guttatus* (monkeyflower)

*Parentucellia viscosa* (Yellow parentucellia)

*Scrophularia californica* (California figwort)

SOLANACEAE

*Solanum douglasii* (White nightshade)

*Solanum umbelliferum* (Blue witch)

*Solanum xanthii* (purple nightshade)

URTICACEAE

*Urtica dioica* (stinging nettle)

VERBENACEAE

*Verbena lasiostachys* (vervain)

**FLOWERING PLANTS – MONOCOTS**

ARACAE

*Zantedeschia aethiopica*. (Calla lily)

CYPERACEAE

*Carex densa*. (Dense sedge)

*Carex harfordii* (Harford's sedge)

*Carex* sp. (sedge)

*Cyperus eragrostis* (nutsedge)

*Eleocharis macrostachya* (spikerush)

*Scirpus acutus* (California tule)

*Scirpus microcarpus* (

IRIDACEAE

*Iris douglasiana* (Douglas's iris)

*Sisyrinchium bellum* (blue-eyes grass)

JUNCACEAE

*Juncus balticus* (Baltic rush)

*Juncus bufonius* (toad rush)

*Juncus effuses* var. *pacificus* (Pacific bog rush)

*Juncus occidentalis* (Western rush)

*Juncus patens* (spreading rush)

*Juncus xiphioides* (irisleaf rush)

*Juncus* sp. (rush)

LILIACEAE

*Allium* sp. (onion)

PLANTAGINACEAE

*Plantago coronopifolia* (Plantain)

*Plantago erecta* (California plantain)

*Plantago lanceolata* (English plantain)

POACEAE

*Aira caryophyllea* (silver European hairgrass)

*Avena barbata* (wild oat)

*Avena fatua* (Wild oat)

*Briza maxima* (rattlesnake grass)

*Briza minor* (little quaking grass)

*Bromus carinatus* (California brome)

*Bromus diandrus* (rippgut brome)

*Bromus hordeaceus* (soft chess)

*Bromus madritensis* (foxtail chess)

*Cortaderia jubata* (jubata grass)

*Cynosurus echinatus* (hedgehog dogtail)

*Dactylis glomerata* (orchard grass)

*Danthonia californica* (California oatgrass)

*Deschampsia cespitosa* (tufted hairgrass)

*Holcus lanatus* (common velvetgrass)

*Hordeum brachyantherum* (barley)

*Hordeum marinum* (barley)

*Hordeum vulgare* (cultivated barley)

*Hordeum marinum gussoneanum* (Mediterranean barley)

Vascular Plant Check List  
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*Hordeum murinum* (barley)  
*Lolium multiflorum* (Italian ryegrass)  
*Nassella pulchra* (purple needlegrass)  
*Poa annua* (bluegrass)  
*Polypogon monspeliensis* (rabbitsfoot grass)  
*Triticum aestivum* (wheat)  
*Vulpia bromoides* (squirreltail)  
*Vulpia myuros* (rat-tail fescue)

TYPHACEAE

*Typha* sp. (cattail)  
*Typha angustifolia* (narrow-leaved cattail)  
*Typha latifolia* (broad-leaved cattail)

# ***ATTACHMENT 3***

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## ***REGIONALLY OCCURRING SPECIAL-STATUS SPECIES LIST***

**ATTACHMENT 3  
TABLE 1  
FEDERAL, STATE, AND CNPS POTENTIALLY OCCURRING SPECIAL-STATUS SPECIES**

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON- SITE
<b>Plants</b>					
<i>Allium peninsulare</i> var. <i>franciscanum</i> Franciscan onion	--/--/1B	Known to occur in Mendocino, Santa Clara, San Mateo, and Sonoma counties (CNPS 2013).	Bulbiferous herb usually found on clay, volcanic, often serpentinite substrate, in cismontane woodland, and valley and foothill grassland at elevations from 52 to 300 meters above msl (CNPS 2013).	May-July	Yes. See text.
<i>Amsinckia lunaris</i> Bent-flowered fiddleneck	--/--/1B	Known to occur in Alameda, Contra Costa, Colusa, Lake, Marin, Napa, San Benito, Santa Clara, Santa Cruz, San Mateo, and Yolo counties (CNPS 2013).	Annual herb found in coastal bluff scrub, cismontane woodland, and valley and foothill grassland at elevations from 3 to 500 meters above msl (CNPS 2013).	March-June	Yes. See text.
<i>Arctostaphylos andersonii</i> Santa Cruz manzanita	--/--/1B	Known to occur in Santa Clara, Santa Cruz, and San Mateo counties. Often confused with other species that have merged with it as varieties (CNPS, 2013).	Evergreen shrub found in openings and edges in broad-leaved upland forest, chaparral, and north coast coniferous forest at elevations from 60 to 730 meters above msl (CNPS 2013).	November-April	No. The project site does not contain suitable habitat for this species.
<i>Arctostaphylos montaraensis</i> Montara manzanita	--/--/1B	Known to occur in San Mateo County (CNPS 2013).	Evergreen shrub found in chaparral, which is occasionally maritime, and coastal scrub from 150 to 500 meters above msl (CNPS 2013).	January-March	No the project site occurs outside of the known elevation range for this species.
<i>Arctostaphylos regismontana</i> Kings Mountain manzanita		Known to occur in Santa Clara, Santa Cruz, and San Mateo counties (CNPS 2013).	Evergreen shrub usually found on granitic or sandstone substrate in broadleaved upland forest, chaparral, and North Coast coniferous forest from 305 to 730 meters above msl (CNPS 2013).	January-April	No. The project site does not provide habitat and occurs outside of the known elevation range for this species.
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i> Coastal marsh milk-vetch	--/--/1B	Known to occur in Humboldt, Mendocino, Marin, and San Mateo counties (CNPS 2013).	Perennial herb found in coastal dunes, which are occasionally mesic, coastal scrub, and marshes and swamps, which are occasionally on streamsides with coastal salt, at elevations from 0 to 30 meters above msl (CNPS 2013).	April-October	No. The project site does not provide habitat suitable for this species.
<i>Centromadia parryi</i> ssp. <i>parryi</i> Pappose tarplant	--/--/1B	Known to occur in Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, and Sonoma counties (CNPS 2013).	Annual herb often found on alkaline soils in chaparral, coastal prairie, meadows and seeps, marshes and swamps, which is occasionally coastal salt, and valley and foothill grassland, which is occasionally vernal mesic, at elevations range from 2 to 420 meters above msl (CNPS 2013).	May-November	Yes. See text.
<i>Chorizanthe cuspidate</i> var. <i>cuspidata</i> San Francisco Bay	--/--/1B	Known to occur in Alameda, Marin, San Francisco, San Mateo, and Sonoma counties (CNPS 2013).	Annual herb usually found on sandy substrate in coastal bluff scrub, coastal dune, coastal prairie, and coastal scrub	April-July, occasionally through August	Yes. See text.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON- SITE
spineflower			from 3 to 215 meters above msl (CNPS 2013).		
<i>Cirsium andrewsii</i> Franciscan thistle	--/--/1B	Known to occur in Contra Costa, Marin, San Francisco, San Mateo, and Sonoma counties (CNPS 2013).	Perennial herb usually found on mesic soils in broadleaved upland forest, coastal bluff scrub, coastal prairie, and coastal scrub, which is sometimes serpentinite, at elevations from 0 to 150 meters above msl (CNPS 2013).	March-July	Yes. See text.
<i>Collinsia multicolor</i> San Francisco collinsia	--/--/1B	Known to occur in Monterey, Santa Clara, Santa Cruz, San Francisco, and San Mateo counties (CNPS 2013).	Annual herb sometimes found on serpentinite substrate in closed-cone coniferous forest and coastal scrub at elevations from 30 to 250 meters above msl (CNPS 2013).	March-May	Yes. See text.
<i>Dirca occidentalis</i> Western leatherwood	--/--/1B	Known to occur in Alameda, Contra Costa, Marin, Santa Clara, San Mateo, and Sonoma counties (CNPS 2013).	Deciduous shrub usually found in mesic areas in broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland at elevations from 50 to 395 meters above msl (CNPS 2013).	January-March (April)	Yes. See text.
<i>Eriophyllum latilobum</i> San Mateo woolly sunflower	FE/CE/1B	Known to occur in San Mateo County (CNPS 2013).	Perennial herb found in cismontane woodland often in serpentine soil on roadcuts at elevations from 45 to 150 meters above msl (CNPS 2013).	May-June	No. The project site does not contain suitable habitat for this species.
<i>Fritillaria biflora</i> var. <i>ineziana</i> Hillsborough chocolate lily	--/--/1B	Known to occur only in the Hillsborough area in San Mateo County (CNPS 2013).	Bulbiferous herb usually found on serpentinite substrate in cismontane woodland and valley and foothill grassland with the nearest occurrence documented at an elevation of 300 meters above msl (CNPS 2013, CNDDDB, 2013).	March-April	No. The project site occurs outside of the known geographic range for this species.
<i>Fritillaria lanceolata</i> var. <i>tristulis</i> Marin checker lily	--/--/1B	Known to occur in Marin and San Mateo counties (CNPS 2013).	Bulbiferous herb found in coastal bluff scrub, coastal prairie, and coastal scrub at elevation from 15 to 150 meters above msl (CNPS 2013).	February-May	Yes. See text.
<i>Fritillaria liliacea</i> Fragrant fritillary	--/--/1B	Known to occur in Alameda, Contra Costa, Monterey, Marin, San Benito, Santa Clara, San Francisco, San Mateo, Solano, and Sonoma counties (CNPS 2013).	Annual herb found often on serpentinite substrate in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grasslands at elevations from 3 to 410 meters above msl (CNPS 2013).	February-April	Yes. See text.
<i>Gilia capitata</i> ssp. <i>chamissonis</i> Blue coast gilia	--/--/1B	Known to occur in Marin, San Francisco, and Sonoma counties (CNPS 2013).	Annual herb found in coastal dunes and coastal scrub at elevations from 2 to 200 meters above msl (CNPS 2013).	April-July	No. The project site is outside the known geographic range for this species.
<i>Hesperevax sparsiflora</i> var.	--/--/1B	Known to occur in Del Norte, Humboldt,	Annual herb found in coastal bluff scrub,	March-June	No. The project site does not

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON- SITE
<i>brevifolia</i> Short-leaved evax		Mendocino, Marin, Santa Cruz, San Francisco, San Mateo, and Sonoma counties in California and Oregon state (CNPS 2013).	which is occasionally sandy, and coastal dunes at elevations from 0 to 215 meters above msl (CNPS 2013).		provide suitable habitat for this species.
<i>Horkelia cuneata</i> ssp. <i>sericea</i> Kellogg's horkelia	--/--/1B	Known to occur in Alameda, Monterey, Marin, Santa Barbara, Santa Cruz, San Francisco, San Luis Obispo, and San Mateo counties (CNPS 2013).	Perennial herb usually found on sandy or gravelly substrate in openings in closed-cone coniferous forest, chaparral, which is occasionally maritime, coastal dunes, and coastal scrub at elevations from 10 to 200 meters above msl (CNPS 2013).	April-September	Yes. See text.
<i>Horkelia marinensis</i> Point Reyes horkelia	--/--/1B	Known to occur in Marin, Mendocino, Santa Cruz, San Mateo, and Sonoma counties (CNPS 2013).	Found in sandy areas of coastal dunes, coastal prairie, and coastal scrub at elevations of 5 to 350 meters above msl (CNPS 2013).	May-September	Yes. See text.
<i>Leptosiphon croceus</i> Coast yellow leptosiphon	--/--/1B	Known to occur in Monterey, Marin, and San Mateo counties (CNPS 2013).	Annual herb found in coastal bluff scrub and coastal prairie from 10 to 150 meters above msl (CNPS 2013).	April-May	Yes. See text.
<i>Leptosiphon rosaceus</i> rose leptosiphon	--/--/1B	Known to occur in Marin, San Francisco, San Mateo, and Sonoma counties (CNPS 2013).	Annual herb found in coastal bluff scrub at elevations from 0 to 100 meters above msl (CNPS 2013).	April-July	No. The project site does not provide suitable habitat for this species.
<i>Lessingia arachnoidea</i> Crystal Springs lessingia	--/--/1B	Known to occur only near Crystal Springs Reservoir in San Mateo County and in Sonoma County (CNPS 2013).	Annual herb usually found on serpentinite substrate, often along roadsides, in cismontane woodland, coastal scrub, and valley and foothill grassland at elevations from 60 to 200 meters above msl (CNPS 2013).	July-October	No. The project site occurs outside of the known geographical range for this species.
<i>Malacothamnus aboriginum</i> Indian Valley bush mallow	--/--/1B	Known to occur in Fresno, Kings, Monterey, San Benito, Santa Clara, and San Mateo counties (CNPS 2013).	Deciduous shrub usually found on rocky, granitic soils, which are often in burned areas, in chaparral and cismontane woodland at elevations from 150 to 1,700 meters above msl (CNPS 2013).	April-October	No. The project site does not provide suitable habitat for this species.
<i>Malacothamnus arcuatus</i> Arcuate bush mallow	--/--/1B	Known to occur in Santa Clara, Santa Cruz, and San Mateo counties (CNPS 2013).	Found in chaparral and cismontane woodland at elevations from 15 to 355 meters above msl (CNPS 2013).	April-September	No. The project site does not provide suitable habitat for this species.
<i>Malacothamnus davidsonii</i> Davidson's bush-mallow	--/--/1B	Known to occur in Los Angeles, Monterey, Santa Clara, San Luis Obispo, and San Mateo counties (CNPS 2013).	Deciduous shrub found in chaparral, cismontane woodland, coastal scrub, and riparian woodland at elevations from 185 to 855 meters above msl (CNPS 2013).	June-January	No the project site occurs outside of the known elevation for this species.
<i>Malacothamnus hallii</i> Hall's bush-mallow	--/--/1B	Known to occur in Contra Costa, Lake, Mendocino, Merced, Santa Clara, San Mateo, and Stanislaus counties (CNPS 2013).	Found in chaparral and coastal scrub at elevations from 10 to 760 meters above msl (CNPS 2013).	May-September Occasionally through October	Yes. See text.
<i>Monolopia gracilens</i>	--/--/1B	Known to occur in Alameda, Contra	Annual herb usually found on serpentine	March-July	No, the project site occurs

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON- SITE
Woodland woollythreads		Costa, Monterey, Santa Clara, Santa Cruz, San Luis Obispo, and San Mateo counties (CNPS 2013).	substrate in broadleafed upland forest openings, chaparral openings, cismontane woodland, North Coast coniferous forest openings, and valley and foothill grassland at elevations from 100 to 1,200 meters above msl (CNPS 2013).		outside of the known elevation for this species.
<i>Pentachaeta bellidiflora</i> White-rayed pentachaeta	FE/CE/1B	Known to occur in Marin, Santa Cruz, and San Mateo counties (CNPS 2013).	Annual herb found in cismontane woodland and valley and foothill grassland, which is often serpentinite, at elevations from 35 to 620 meters above msl (CNPS 2013).	March-May	Yes. See text.
<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i> Choris' popcorn-flower	--/--/1B	Known to occur in Alameda, Santa Cruz, San Francisco, and San Mateo counties (CNPS 2013).	Annual herb usually found on mesic substrate in chaparral, coastal prairie, and coastal scrub from 15 to 160 meters above msl (CNPS 2013).	March-June	Yes. See text.
<i>Polemonium carneum</i> Oregon polemonium	--/--/2	Known to occur in Alameda, Del Norte, Humboldt, Marin, San Francisco, Siskiyou, San Mateo, and Sonoma counties in California and in Oregon and Washington (CNPS 2013).	Perennial herb found in coastal prairie, coastal scrub and lower montane coniferous forest from 0 to 1,830 meters above msl (CNPS 2013).	April-September	Yes. See text.
<i>Potentilla hickmanii</i> Hickman's cinquefoil	FE/CE/1B	Known to occur in Monterey, San Mateo, and Sonoma counties (CNPS 2013).	Found in coastal bluff scrub, closed-cone coniferous forest, vernal mesic meadows and seeps, and freshwater marshes and swamps at elevations from 10 to 149 meters above msl (CNPS 2013).	April-August	No. The project site does not contain suitable habitat for this species.
<i>Silene verecunda</i> ssp. <i>verecunda</i> San Francisco campion	--/--/1B	Known to occur in Santa Cruz, San Francisco, San Mateo, and Sutter counties (CNPS 2013).	Usually found on sandy soils in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland at elevations from 30 to 645 meters (CNPS 2013).	March-June, occasionally through August	Yes. See text.
<i>Trifolium amoenum</i> Showy rancheria clover	FE/--/1B	Known to occur in Marin, Napa, Santa Clara, San Mateo, Solano, and Sonoma counties (CNPS 2013).	Annual herb found sometimes on serpentinite substrate in coastal bluff scrub and valley and foothill grassland at elevations from 5 to 415 meters (CNPS 2013).	April-June	Yes. See text.
<i>Triphysaria floribunda</i> San Francisco owl's clover	--/--/1B	Known to occur in Marin, San Francisco, and San Mateo counties (CNPS 2013).	Usually found on serpentinite substrate in coastal prairie, coastal scrub, and valley and foothill grassland at elevations from 10 to 160 meters above msl (CNPS 2013).	April-June	Yes. See text.
<i>Triquetrella californica</i> Coastal triquetrella	--/--/1B.2	Known to occur in Contra Costa, Del Norte, Mendocino, Marin, San Diego, San Francisco, San Mateo, and Sonoma counties. Also occurs in Oregon (CNPS 2013).	Usually found on soil in coastal bluff scrub and coastal scrub at elevations from 10 to 100 meters above msl (CNPS 2013).	N/A	Yes. See text.



SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON- SITE
<b>Animals</b>					
<b>Invertebrates</b>					
<i>Callophrys mossii bayensis</i> San Bruno elfin butterfly	FE/--/--	Known to occur in the coastal mountains of the San Francisco Bay within Contra Costa, Marin, and San Mateo counties (Xerces Society 2011).	Found in the fogbelt of steep north facing slopes that receive little direct sunlight. Larval food plant is stonecrop ( <i>Sedum spathulifolium</i> ), which occurs on mainly north-facing slopes at elevations from 61 to 1,524 meters above msl (Xerces Society 2011).	February-April (mating flight) Wet Season (larvae)	No. Suitable habitat for this species does not occur on the project site.
<i>Haliotis cracherodii</i> Black abalone	FE/--/--	Known to occur in Point Arena in northern California to Bahia Tortugas and Isla Guadalupe, Mexico (NMFS 2011).	Found wedged into crevices, cracks, and holes of intertidal and shallow subtidal rocks, where they are fairly concealed, during low tides. Prefers areas of moderate to high surf (NMFS 2011).	All Year	No. The project site does not provide habitat and occurs outside of the geographic range for this species.
<i>Haliotes sorenseni</i> White abalone	FE/--/--	Known to occur from Point Conception (southern California) southward to Baja California (NMFS 2011).	Found on rocky substratum including pinnacles, rock piles, and deep reefs in waters from 24.38 to 60.96 meters deep (NMFS 2011).	All Year	No. The project site does not provide habitat and occurs outside of the geographic range for this species.
<i>Icaricia icarioides missionensis</i> Mission blue butterfly	FE/--/--	Known only from a few small populations located at Twin Peaks in San Francisco County, Fort Baker in Marin County, and San Bruno Mountain in San Mateo County (Xerces Society 2011).	Found in coastal chaparral and coastal prairie communities, typically within the fog-belt of the coastal range at elevations from 210 to 360 meters. Larval food plant is lupine ( <i>Lupinus albifrons</i> , <i>L. formosus</i> , and <i>L. variicolor</i> ). Adults feed on lupine, hairy golden aster ( <i>Heterotheca villosa</i> ), blue dicks ( <i>Dichelostemma capitatum</i> ), and buckwheat ( <i>Eriogonum latifolium</i> ) (Xerces Society 2011).	March-July (mating flight) Wet Season (larvae)	No. The project site is outside of the geographic and elevation ranges for this species.
<i>Speyeria zerene myrtleae</i> Myrtle's silverspot butterfly	FE/--/--	Known to occur in western Marin and southwestern Sonoma counties, including the Point Reyes National Seashore (Xerces Society 2011).	Found in found in coastal dune or prairie habitat in sheltered areas within 3 miles of the coast at elevations from sea level to 250 meters. Females lay their eggs in the debris and dried stems of violets (typically hookedspur violet, <i>Viola adunca</i> ), the larval food plants. Adults also feed on gumplant ( <i>Grindelia</i> species), yellow sand verbena ( <i>Abronia latifolia</i> ), monardella ( <i>Monardella</i> species), bull thistle ( <i>Cirsium vulgare</i> ), and seaside daisy ( <i>Erigeron glaucus</i> ) (Xerces Society 2011).	June-September (mating flight) Wet Season (larvae)	No. The project site is outside of the known geographic range and does not provide suitable larval host plants for this species.
<b>Fish</b>					
<i>Eucyclogobius newberryi</i> Tidewater goby	FE/CSC/--	Occurs in coastal lagoons throughout California from Del Norte County to San	Generally found in brackish to freshwater shallow lagoons and slow moving lower	Consult Agency	No. The project site does not contain habitat for this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON- SITE
		Diego County (NatureServe 2011).	stream reaches. Habitat is fairly still, but not stagnant and they will avoid open areas with strong currents and/or wave action. Marshy habitats where they can avoid backwater flood flows (NatureServe 2011).		
<i>Hypomesus transpacificus</i> Delta smelt	FT/CT/--	Known almost exclusively in the Sacramento-San Joaquin estuary, from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo counties. May also occur in the San Francisco Bay (Moyle 2002).	Found in estuarine waters. Majority of life span is spent within the freshwater outskirts of the mixing zone (saltwater-freshwater interface) within the Delta (Moyle 2002).	Consult Agency	No. The project site does not contain habitat for this species.
<i>Oncorhynchus kisutch</i> Coho salmon Central California Coast ESU	FE/CE/--	Known to occur throughout the major rivers and tributaries from the Noyo River, south of Fort Bragg, to the San Lorenzo River, east of Santa Cruz. The distribution includes Marin, Mendocino, San Francisco, San Mateo, Santa Cruz, and Sonoma counties (NMFS 2011).	Found during the first half of their life cycle rearing and feeding in streams and small freshwater tributaries. Spawning habitat is small streams with stable gravel substrates. The remainder of the life cycle is spent foraging in estuarine and marine waters of the Pacific Ocean (NMFS 2011).	November – February	Yes. See text.
<i>Oncorhynchus mykiss</i> Steelhead Central California Coast ESU	FT, CH/--/--	Known to spawn in drainages from the Russian River basin, Sonoma and Mendocino counties, to Soquel Creek, Santa Cruz County (including the San Francisco Bay basin, but not the Sacramento and San Joaquin Rivers or their tributaries) (NMFS 2011).	Adults migrate from a marine environment into the freshwater streams and rivers of their birth in order to mate. Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Require deep low-velocity pools for wintering habitat in rivers. Spawning habitat consists of gravel substrates free of excessive silt (NMFS 2011).	Consult Agency	Yes. See text.
<i>Oncorhynchus mykiss irideus</i> Steelhead Central Valley ESU	FT/--/--	Known to occur in the Sacramento and San Joaquin Rivers and their tributaries (NMFS 2011).	Spawns in streams with pool and riffle complexes. For successful breeding, cold water and a gravelly streambed are required (NMFS 2011).	Consult Agency	Yes. See text.
<i>Spirinchus thaleichthys</i> Longfin smelt	--/CT/--	Known to occur along the Pacific Coast of North America (NatureServe, 2013).	Occurs in a wide range of salinity conditions in oceans, bays, estuaries, and rivers (Moyle, 2002). Daily migration from deep to shallow water. Swims at depths of at least 150 meters in the ocean (NatureServe, 2013).	Consult Agency	No. The project site does not provide habitat for this species.
<b>Amphibians</b>					
<i>Rana aurora draytonii</i> California red-legged frog	FT,CH/CSC/--	Known along the Coast from Mendocino County to Baja California, and inland through the northern Fresno Valley into the foothills of the Sierra Nevada	Found in permanent and temporary pools of streams, marshes, and ponds with dense grassy and/or shrubby vegetation from 0 to 1,500 meters (NatureServe 2011).	November – March (breeding)  June - August	Yes. See text.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON- SITE
		mountains, south to eastern Tulare County, and possibly eastern Kern County. Currently accepted range excludes the Central Valley (USFWS 1994).		(non-breeding)	
<b>Reptiles</b>					
<i>Emys marmorata</i> Western pond turtle	--/CSC/--	Known throughout California west of the Sierra-Cascade crest. Absent from desert regions except along the Mohave River and its tributaries (Stebbins 2003).	Found in permanent ponds, lakes, streams, irrigation ditches, permanent pools and along intermittent streams. Requires aquatic habitats with suitable basking sites. Nest sites most often characterized as having gentle slopes less than 15 percent with little vegetation or sandy banks. Found from 0 to 1,430 meters (Stebbins 2003).	All year	Yes. See text.
<i>Thamnophis sirtalis tetrataenia</i> San Francisco garter snake	FE, FP/CE/--	Known to occur on the San Francisco peninsula from near the southern San Francisco County line south to Ano Nuevo in San Mateo County and in Rancho del Oso state park in Santa Cruz County (Californiaherps 2011).	Prefers grasslands or wetlands near ponds, marshes and sloughs. May overwinter in upland areas away from water (Californiaherps 2011).	March - July	Yes. See text.
<b>Birds</b>					
<i>Brachyramphus marmoratus</i> Marbled murrelet	FT, CH/CE/--	Found from the western Aleutian Islands through coastal southern and southeastern Alaska, British Columbia, Washington, Oregon, and northern central California (NatureServe 2011).	Nests from May through early August in Washington. Outside of the breeding season, found in coastal areas, mainly in salt water within 2 km of shore, including bays and sounds. Nests in trees in terrestrial habitat including alpine, conifer forest, and Tundra (NatureServe 2011).	All Year	No. Suitable habitat for this species does not occur on the project site.
<i>Charadrius alexandrinus nivosus</i> Western snowy plover	FT/CSC/--	Known in California to breed in Alameda, Del Norte, Humboldt, Inyo, Kern, Kings, Los Angeles, Marin, Mendocino, Modoc, Monterey, Napa, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Siskiyou, Sonoma, Tulare, Ventura, and Yolo counties (NatureServe 2011).	Nests on the ground on broad open beaches or salt or dry mud flats, where vegetation is sparse or absent (small clumps of vegetation are used for cover by chicks); nests beside or under objects or in open areas (NatureServe 2011).	All year	No. Suitable habitat for this species does not occur on the project site.
<i>Diomedea albatrus</i> Short-tailed albatross	FE/--/--	Known in California to occur in Del Norte, Humboldt, and Mendocino counties (USFWS 2011).	Requires remote islands for breeding habitat. Nests in open treeless areas, with low or no vegetation. Requires nutrient-rich areas of ocean upwelling for foraging habitat (USFWS 2011).	All Year	No. Suitable habitat for this species does not occur on the project site.
<i>Geothlypis trichas sinuosa</i>	--/CSC/--	Breeding range bounded by Tomales	Inhabits salt marshes. Nests just above	March-July	No. Suitable nesting habitat

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON- SITE
Salt-marsh common yellowthroat		Bay on the north, Carquinez Strait on the east, and Santa Cruz County to south, with occurrences in the Bay Area during migration and winter (NatureServe 2011).	ground or over water, in thick herbaceous vegetation, often at base of shrub or sapling, sometimes higher in weeds or shrubs up to about 1 meter (NatureServe 2011).		for this species does not occur on the project site.
<i>Melospiza melodia pusillula</i> Alameda song sparrow	--/CSC/--	Known to occur in areas bordering southern and eastern fringes of San Francisco bay (NatureServe 2011).	Commonly found in saltmarsh, brackish marsh, and fringe areas, where marsh vegetation is limited to edges of dikes, land fills, or other margins of high ground bordering salt or brackish water areas (NatureServe 2011).	All Year	No. Suitable habitat for this species does not occur on the project site.
<i>Pelecanus occidentalis californicus</i> California brown pelican	FE/CE/--	Estuarine, marine subtidal, and marine pelagic waters along the California coast (NatureServe 2011).	Nests on coastal islands of small to moderate size, which afford immunity from, attack by ground dwelling predators. Usually rests on water or inaccessible rocks (either offshore or on mainland), but also uses mudflats, sandy beaches, wharfs, and jetties (NatureServe 2011).	All Year	No. Suitable habitat for this species does not occur on the project site.
<i>Rallus longirostris obsoletus</i> California clapper rail	FE/CE/--	Resident of coastal wetlands and brackish areas around San Francisco Bay (NatureServe, 2011).	Nests mostly in lower zones, where cordgrass is abundant and tidal sloughs are nearby in saline emergent wetlands. Builds a platform concealed by a canopy of woven cordgrass stems or pickleweed and gumweed. Also nests in dense cattail or bulrush in fresh or brackish water. Forages in higher marsh vegetation, along vegetation and mudflat interface, and along tidal creeks (NatureServe 2011).	All year	No. Suitable habitat for this species does not occur on the project site.
<i>Sternula antillarum</i> California least tern	FE/CE/--	Known in California from Alameda, Contra Costa, Los Angeles, Orange, San Diego, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Solano, and Ventura counties (NatureServe 2011).	Breeds along seacoasts, beaches, bays, estuaries, lagoons, lakes, and rivers. Nests usually in shallow depression on level ground on sandy or gravelly beaches and banks of rivers or lakes, typically in areas with sparse or no vegetation (NatureServe 2011).	April - May	No. Suitable habitat for this species does not occur on the project site.
<b>Mammals</b>					
<i>Antrozous pallidus</i> Pallid bat	--/CSC/--	Known from arid and semi-arid regions across much of the American west, up and down the coast from Canada and Mexico (Arizona-Sonora Desert Museum 2006-2009).	Found in grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests from 0 to 2,000 meters. The species is most common in open, dry habitats with rocky areas for roosting. Roosts also include cliffs, abandoned buildings, bird boxes, and under bridges (Harris 2000).	Year round	Yes. See text.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON- SITE
<i>Arctocephalus townsendi</i> Guadalupe fur seal	FT/--/--	Only known breeding colony is located on Guadalupe Island, off the Mexican coast. Increasing numbers have been observed on the Channel Islands and along the central coast of California (NatureServe 2011).	Found near shore and known to breed in caves and rocky sites on Guadalupe Island rather than on open beaches. Foraging individuals have been sited as far south as Tapachula near the Mexico / Guatemala border, as far north as the Point Reyes National Seashore in California, and in the Gulf of California (NatureServe 2011).	All Year	No. Suitable habitat for this species does not occur on the project site.
<i>Balaenoptera borealis</i> Sei whale	FE/--/--	Inhabits all oceans and adjoining seas except in polar regions, feeding in cold water during the summer and migrating to warm tropical and subtropical waters during the winter. In the western North Pacific, sei whales are common in the southwest Bering Sea to the Gulf of Alaska, and offshore in a broad arc between about 40° North and 55° North across the Pacific (NatureServe 2011).	Found in the open ocean (NatureServe 2011).	Consult Agency	No. Suitable habitat for this species does not occur on the project site.
<i>Balaenoptera musculus</i> Blue whale	FE/--/--	Occurs in all oceans, primarily along the edge of the continental shelf or along ice fronts. Major populations are found in the North Pacific, North Atlantic and southern hemisphere (NatureServe 2011).	Found in the open ocean (NatureServe 2011).	Consult Agency	No. Suitable habitat for this species does not occur on the project site.
<i>Balaenoptera physalus</i> Finback whale	FE/--/--	Distributed worldwide, with three major distinct populations: the North Atlantic, North Pacific, and southern oceans (NatureServe 2011).	Found in the open ocean (NatureServe 2011).	Consult Agency	No. Suitable habitat for this species does not occur on the project site.
<i>Enhydra lutris nereis</i> Southern sea otter	FT/--/--	Found in nearshore marine environments from Half Moon Bay, San Mateo Co. to Point Conception along the coast of central and southern California (NatureServe 2011).	Occupy hard- and soft-sediment marine habitats from the littoral zone to depths of less than 100 meters, including protected bays and exposed outer coasts. Most individuals occur between shore and the 20-meter depth contour. Canopies of giant kelp and bull kelp provide important rafting and feeding areas (NatureServe 2011).	All Year	No. Suitable habitat for this species does not occur on the project site.
<i>Eubalaena glacialis</i> Right whale	FE/--/--	Infrequent sightings along the eastern North Pacific, with the majority of these occurring in the Bering Sea and adjacent areas of the Aleutian Islands. Sightings have been reported as far south as central Baja California in the eastern North Pacific, as far south as	Found in the open ocean (NatureServe 2011).	Consult Agency	No. Suitable habitat for this species does not occur on the project site.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON- SITE
		Hawaii in the central North Pacific, and as far north as the sub-Arctic waters of the Bering Sea and Sea of Okhotsk in the summer (NatureServe 2011).			
<i>Eumetopias jubatus</i> Stellar (Northern) sea-lion	FT/ /--	Found in coastal waters of the North Pacific Ocean. Breeding colonies in Oregon and British Columbia (NatureServe, 2013).	Found in the open ocean and basking along shorelines (NatureServe, 2013)	Year-round	No. Suitable habitat for this species does not occur on the project site.
<i>Neotoma fuscipes annectens</i> San Francisco dusky-footed woodrat	--/CSC/--	Known to occur in Alameda, Contra Costa, San Mateo, Santa Clara, Santa Cruz counties (NatureServe 2011).	Found in riparian areas along streams and rivers. Requires areas with a mix of brush and trees (NatureServe 2011).	Year Round	Yes. See text.
<i>Nyctinomops macrotis</i> Big free-tailed bat	--/CSC/--	In California, known from Alameda, Contra Costa, Imperial, Inyo, Los Angeles, Orange, Riverside, San Diego, San Luis Obispo, San Mateo, and Santa Barbara counties (NatureServe 2011).	Roosts in rock crevices (vertical or horizontal) in cliffs; also in buildings caves, and occasionally tree holes from 0 to 2,600 meters (NatureServe 2011).	May-September	No. Suitable habitat for this species does not occur on the project site.
<i>Physeter catodon</i> Sperm whale	FE/--/--	Occurs in all oceans worldwide. Frequently found close to the edge of pack ice in both hemispheres and common along the equator, especially in the Pacific. Found year-round in California waters (NatureServe 2011).	Found in the open ocean (NatureServe 2011).	Consult Agency	No. Suitable habitat for this species does not occur on the project site.
<i>Reithrodontomys raviventris</i> Salt marsh harvest mouse	FE/CE/--	Only in the saline emergent wetlands of San Francisco Bay and its tributaries (NatureServe 2011).	Pickleweed (salicornia) is the primary habitat. Does not burrow, but builds loosely organized nests. Requires higher areas for flood escape (NatureServe 2011).	All Year	No. Suitable habitat for this species does not occur on the project site.
<i>Taxidea taxus</i> American badger	--/CSC/--	Known throughout most of California except in the northern North Coast (Ahlborn 2005).	Found in the drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Badgers are generally associated with treeless regions, prairies, parklands, and cold desert areas. Cultivated lands have been reported to provide little usable habitat for this species (Ahlborn 2005).	Year round	No. Suitable habitat for this species does not occur on the project site.
<b>Habitats</b>					
Northern Coastal Salt Marsh					
Northern Maritime Chaparral					
Serpentine Bunchgrass					
Valley Needlegrass Grassland					

**FEDERAL: United States Fish and Wildlife Service (USFWS, 2013)**

FE Federally Endangered

FT Federally Threatened  
FC Federal Candidate for Listing

**STATE: California Department of Fish and Game (CDFG, 2013)**

CE California Listed Endangered  
CR California Listed Rare  
CT California Listed Threatened  
CSC California Species of Special Concern

**CNPS: California Native Plant Society (CNPS, 2013)**

List 1A Plants Presumed Extinct in California  
List 1B Plants Rare, Threatened, or Endangered in California and Elsewhere  
List 2 Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

Months in parenthesis are uncommon; Counties designated with an asterisk (\*) means that the population is extirpated; Counties designated with a (\*?) means that the occurrence is confirmed, but possibly extirpated.



Sources: USFWS, 2009; CDFG, 2003 and 2011; CNPS 2011; Moyle, 2002 (fish); CaliforniaHerps.com 2011 (herps).

Ahlborn, G., 2005. American Badger (*Taxidea taxus*). California Wildlife Habitat Relationships System, California Department of Fish and Game, California. Interagency Wildlife Task Group.

Arizona-Sonora Desert Museum, 2006-2009. Animal Fact Sheet: Pallid Bat. Tucson, Arizona. Available at: <http://www.desertmuseum.org/kids/bats/Pallid%20bat.php>. Accessed on November 17, 2011.

California Department of Fish and Game (CDFG), 2005. Special Animals. Habitat Conservation Division, CNDDDB, Sacramento, California. August 2005. Available at: <http://www.dfg.ca.gov/whdab/pdfs/SPAnimals.pdf>. Accessed on November 17, 2011.

CaliforniaHerps.com, 2011. Information About California Frogs, Snakes, Lizards, Turtles and Salamanders. Available at: [www.californiaherps.com](http://www.californiaherps.com). Accessed on November 17, 2011.

Harris, 2000. Originally Written By: California Wildlife Habitat Relationships Systems. California Department of Fish and Game. California Interagency Wildlife Task Group. January 2000. Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. California's Wildlife. Vol. I-III. California Department of Fish and Game, Sacramento, California.

Moyle, P.B., 2002. Inland Fishes of California. Revised and Expanded Edition. University of California Press, Berkeley, California.

National Marine Fisheries Service (NMFS), 2011. Species. NOAA Office of Protected Fisheries. Updated October 27, 2011. Available at: <http://www.nmfs.noaa.gov/pr/species/invertebrates>. Accessed on November 17, 2011.

NatureServe, 2011. NatureServe Explorer: An Online Encyclopedia of Life [Web Application]. Version 7.1. February 2009. Last updated July 2011. NatureServe, Arlington, Virginia. Available at: <http://www.natureserve.org/explorer>. Accessed on November 11, 2011.

Stebbins, R.C., 2003. A Field Guide to Western Reptiles and Amphibians, 3rd ed. Houghton Mifflin, Boston, Massachusetts.

U.S. Fish and Wildlife Service (USFWS), 1994. Proposed Endangered Status for the California Red-Legged Frog. Federal Register. 2 February 1994. 59(22): 4888-4895.

Xerces Society, 2011. Invertebrate Conservation. Portland, Oregon. Available at: <http://www.xerces.org>. Accessed on November 17, 2011.

For the Central California Coast, designated critical habitat includes all river reaches and estuarine areas accessible to listed steelhead in coastal river basins from the Russian River to Aptos Creek, California (inclusive), and the drainages of San Francisco and San Pablo Bays (Federal Register 2000). Also included are adjacent riparian zones, all waters of San Pablo Bay westward of the Carquinez Bridge, and all waters of San Francisco Bay from San Pablo Bay to the Golden Gate Bridge.

For the Central Valley ESU, designated critical habitat includes all river reaches accessible to listed steelhead in the Sacramento and San Joaquin Rivers and their tributaries in California (Federal Register 2000a).

Federal Register Vol. 70, page 52488, September 2, 2005

*Critical habitat boundaries.*

(4) San Mateo Hydrologic Unit 2202—  
(i) *San Mateo Coastal Hydrologic Subarea*  
220221. Outlet(s) = Denniston  
Creek (37.5033, -122.4869); Frenchmans  
Creek (37.4804, -122.4518); San Pedro  
Creek (37.5964, -122.5057) upstream to  
endpoint(s) in: Denniston Creek  
(37.5184, -122.4896);

# **APPENDIX D**

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## ENVIRONMENTAL DATABASE REPORT

**CCWD Denniston / San Vicente**

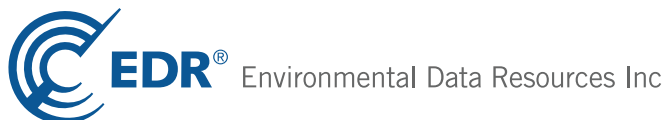
1862 Etheldore Street

Half Moon Bay, CA 94019

Inquiry Number: 3280408.2s

March 19, 2012

# The EDR Radius Map™ Report with GeoCheck®



440 Wheelers Farms Road  
Milford, CT 06461  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

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***Thank you for your business.***  
 Please contact EDR at 1-800-352-0050  
 with any questions or comments.

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## EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

### TARGET PROPERTY INFORMATION

#### ADDRESS

1862 ETHELDORE STREET  
HALF MOON BAY, CA 94019

#### COORDINATES

Latitude (North): 37.5225000 - 37° 31' 21.00"  
Longitude (West): 122.4944000 - 122° 29' 39.84"  
Universal Transverse Mercator: Zone 10  
UTM X (Meters): 544677.9  
UTM Y (Meters): 4152753.0  
Elevation: 210 ft. above sea level

### USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 37122-E4 MONTARA MOUNTAIN, CA  
Most Recent Revision: 1999

### AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from: 2009, 2010  
Source: USDA

### TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

### DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

### STANDARD ENVIRONMENTAL RECORDS

#### ***Federal NPL site list***

NPL..... National Priority List

## EXECUTIVE SUMMARY

Proposed NPL..... Proposed National Priority List Sites  
NPL LIENS..... Federal Superfund Liens

### ***Federal Delisted NPL site list***

Delisted NPL..... National Priority List Deletions

### ***Federal CERCLIS list***

CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System  
FEDERAL FACILITY..... Federal Facility Site Information listing

### ***Federal CERCLIS NFRAP site List***

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

### ***Federal RCRA CORRACTS facilities list***

CORRACTS..... Corrective Action Report

### ***Federal RCRA non-CORRACTS TSD facilities list***

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

### ***Federal RCRA generators list***

RCRA-LQG..... RCRA - Large Quantity Generators  
RCRA-SQG..... RCRA - Small Quantity Generators  
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

### ***Federal institutional controls / engineering controls registries***

US ENG CONTROLS..... Engineering Controls Sites List  
US INST CONTROL..... Sites with Institutional Controls

### ***Federal ERNS list***

ERNS..... Emergency Response Notification System

### ***State- and tribal - equivalent NPL***

RESPONSE..... State Response Sites

### ***State- and tribal - equivalent CERCLIS***

ENVIROSTOR..... EnviroStor Database

### ***State and tribal landfill and/or solid waste disposal site lists***

SWF/LF..... Solid Waste Information System

### ***State and tribal leaking storage tank lists***

LUST..... Geotracker's Leaking Underground Fuel Tank Report  
SLIC..... Statewide SLIC Cases



## EXECUTIVE SUMMARY

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

### **State and tribal registered storage tank lists**

UST..... Active UST Facilities  
AST..... Aboveground Petroleum Storage Tank Facilities  
INDIAN UST..... Underground Storage Tanks on Indian Land  
FEMA UST..... Underground Storage Tank Listing

### **State and tribal voluntary cleanup sites**

INDIAN VCP..... Voluntary Cleanup Priority Listing  
VCP..... Voluntary Cleanup Program Properties

### **ADDITIONAL ENVIRONMENTAL RECORDS**

#### **Local Brownfield lists**

US BROWNFIELDS..... A Listing of Brownfields Sites

#### **Local Lists of Landfill / Solid Waste Disposal Sites**

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations  
ODI..... Open Dump Inventory  
WMUDS/SWAT..... Waste Management Unit Database  
SWRCY..... Recycler Database  
HAULERS..... Registered Waste Tire Haulers Listing  
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

#### **Local Lists of Hazardous waste / Contaminated Sites**

US CDL..... Clandestine Drug Labs  
HIST Cal-Sites..... Historical Calsites Database  
SCH..... School Property Evaluation Program  
Toxic Pits..... Toxic Pits Cleanup Act Sites  
CDL..... Clandestine Drug Labs  
US HIST CDL..... National Clandestine Laboratory Register

#### **Local Lists of Registered Storage Tanks**

CA FID UST..... Facility Inventory Database  
HIST UST..... Hazardous Substance Storage Container Database  
SWEEPS UST..... SWEEPS UST Listing

#### **Local Land Records**

LIENS 2..... CERCLA Lien Information  
LUCIS..... Land Use Control Information System  
LIENS..... Environmental Liens Listing  
DEED..... Deed Restriction Listing

#### **Records of Emergency Release Reports**

HMIRS..... Hazardous Materials Information Reporting System

## EXECUTIVE SUMMARY

CHMIRS..... California Hazardous Material Incident Report System  
LDS..... Land Disposal Sites Listing  
MCS..... Military Cleanup Sites Listing

### ***Other Ascertainable Records***

RCRA-NonGen..... RCRA - Non Generators  
DOT OPS..... Incident and Accident Data  
DOD..... Department of Defense Sites  
CONSENT..... Superfund (CERCLA) Consent Decrees  
ROD..... Records Of Decision  
UMTRA..... Uranium Mill Tailings Sites  
MINES..... Mines Master Index File  
TRIS..... Toxic Chemical Release Inventory System  
TSCA..... Toxic Substances Control Act  
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)  
HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing  
SSTS..... Section 7 Tracking Systems  
ICIS..... Integrated Compliance Information System  
PADS..... PCB Activity Database System  
MLTS..... Material Licensing Tracking System  
RADINFO..... Radiation Information Database  
FINDS..... Facility Index System/Facility Registry System  
RAATS..... RCRA Administrative Action Tracking System  
CA BOND EXP. PLAN..... Bond Expenditure Plan  
NPDES..... NPDES Permits Listing  
WDS..... Waste Discharge System  
Cortese..... "Cortese" Hazardous Waste & Substances Sites List  
HIST CORTESE..... Hazardous Waste & Substance Site List  
Notify 65..... Proposition 65 Records  
DRYCLEANERS..... Cleaner Facilities  
WIP..... Well Investigation Program Case List  
ENF..... Enforcement Action Listing  
San Mateo Co. BI..... Business Inventory  
HAZNET..... Facility and Manifest Data  
EMI..... Emissions Inventory Data  
INDIAN RESERV..... Indian Reservations  
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing  
FINANCIAL ASSURANCE..... Financial Assurance Information Listing  
HWP..... EnviroStor Permitted Facilities Listing  
PCB TRANSFORMER..... PCB Transformer Registration Database  
PROC..... Certified Processors Database  
MWMP..... Medical Waste Management Program Listing  
COAL ASH DOE..... Steam-Electric Plant Operation Data  
COAL ASH EPA..... Coal Combustion Residues Surface Impoundments List  
HWT..... Registered Hazardous Waste Transporter Database

### **EDR PROPRIETARY RECORDS**

#### ***EDR Proprietary Records***

Manufactured Gas Plants..... EDR Proprietary Manufactured Gas Plants  
EDR Historical Auto Stations... EDR Proprietary Historic Gas Stations

# EXECUTIVE SUMMARY

EDR Historical Cleaners..... EDR Proprietary Historic Dry Cleaners

## SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

## ADDITIONAL ENVIRONMENTAL RECORDS

### ***Other Ascertainable Records***

FUDS: The Listing includes locations of Formerly Used Defense Sites Properties where the US Army Corps Of Engineers is actively working or will take necessary cleanup actions.

A review of the FUDS list, as provided by EDR, and dated 12/31/2009 has revealed that there is 1 FUDS site within approximately 1 mile of the target property.

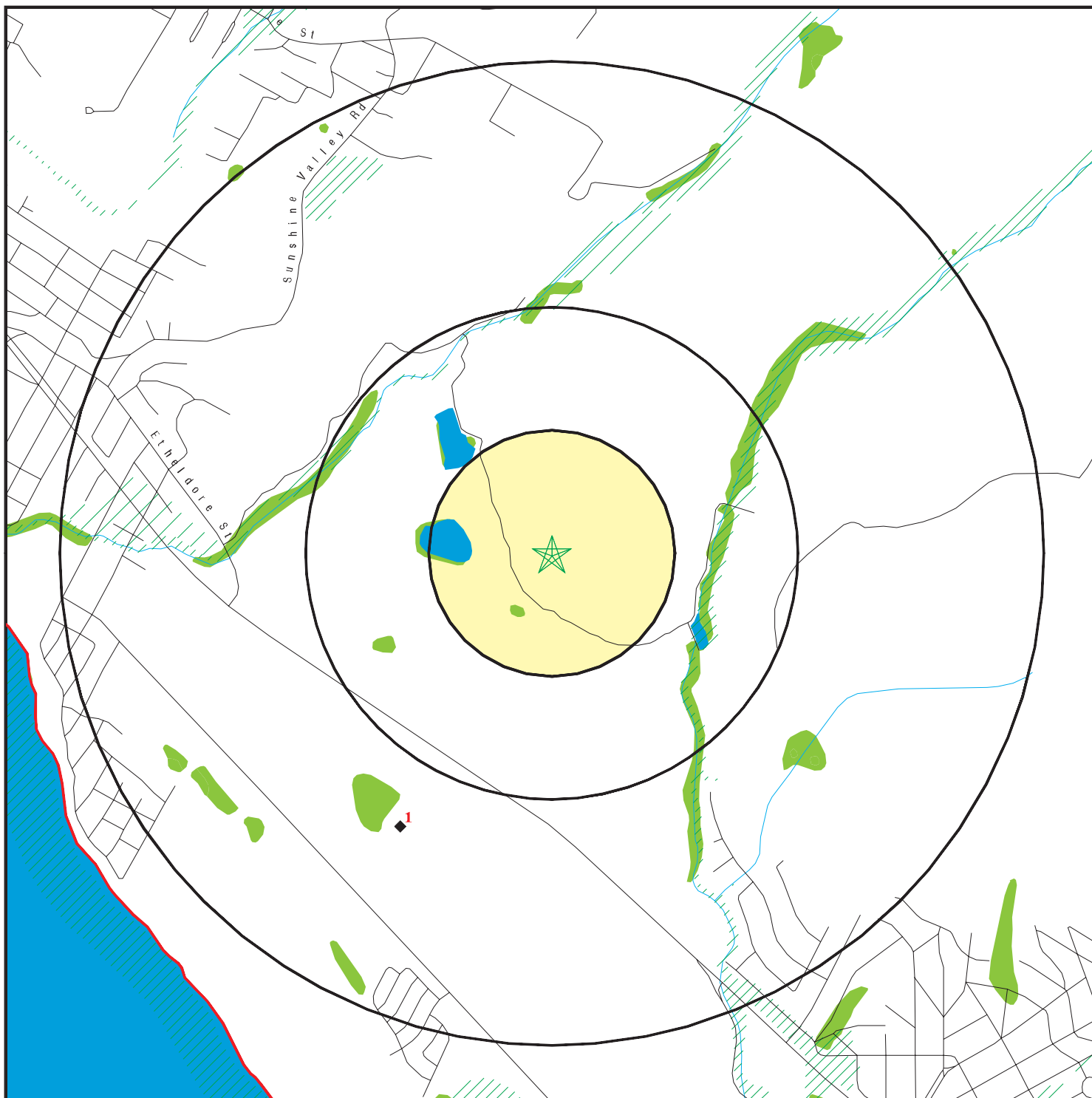
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
	HALF MOON BAY FLIGHT STRIP	SSW 1/2 - 1 (0.635 mi.)	1	8

## EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 29 records.

<u>Site Name</u>	<u>Database(s)</u>
CORINDA LOS TRANCOS LNDLFL	WDS, WMUDS/SWAT, NPDES, ENF
PAPAS GEORGES	HIST CORTESE, San Mateo Co. BI
ITTWC COASTAL MARINE STAT KFS	SWEEPS UST
EIRCA NURSERY	SWEEPS UST
MCCAHON NURSERY COMPANY	SWEEPS UST
SOUTH HALF MOON BAY	CERC-NFRAP
CALTRANS MAINTENANCE FACILITY	LUST
SUPER-7 #18827	HIST UST
RICE TRUCKING	AST
MAIN RANGE/SOUTH RANGE	AST
HALF MOON BAY AIRPORT	AST
PACIFIC BELL	RCRA-SQG, FINDS
CLOSE TO SAN FRANCISCO INTERNATIONAL	ERNS
RICE TRUCKING	San Mateo Co. BI
ERICA NURSERY	San Mateo Co. BI
PODESTA RANGE	San Mateo Co. BI
BAY CHEVRON SERVICE #7927	San Mateo Co. BI
GREENHOUSE CLEANERS	San Mateo Co. BI
AZEVEDO FEED & TRUCKING	San Mateo Co. BI
CAL TRANS HMB MAIN STATION	San Mateo Co. BI
SPRINT NEXTEL- HALF MOON BAY AIRPO	San Mateo Co. BI
CALIFORNIA EVERGREEN RANGE	San Mateo Co. BI
RESIDENCE	San Mateo Co. BI
GIUSTI FARMS	San Mateo Co. BI
MOSS BEACH CHEVRON	San Mateo Co. BI
HALF MOON BAY AIRPORT	San Mateo Co. BI
HALF MOON BAY AERO	San Mateo Co. BI
AMERICAN TOWER SITE#8630- MONTARA	San Mateo Co. BI
MONTARA PEAK-SITE 8063	San Mateo Co. BI

# OVERVIEW MAP - 3280408.2s



★ Target Property

▲ Sites at elevations higher than or equal to the target property

◆ Sites at elevations lower than the target property

▲ Manufactured Gas Plants

■ National Priority List Sites

■ Dept. Defense Sites

■ Indian Reservations BIA

— County Boundary

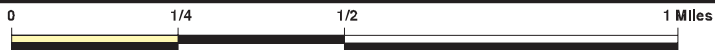
— Oil & Gas pipelines from USGS

■ 100-year flood zone

■ 500-year flood zone

■ National Wetland Inventory

■ Areas of Concern

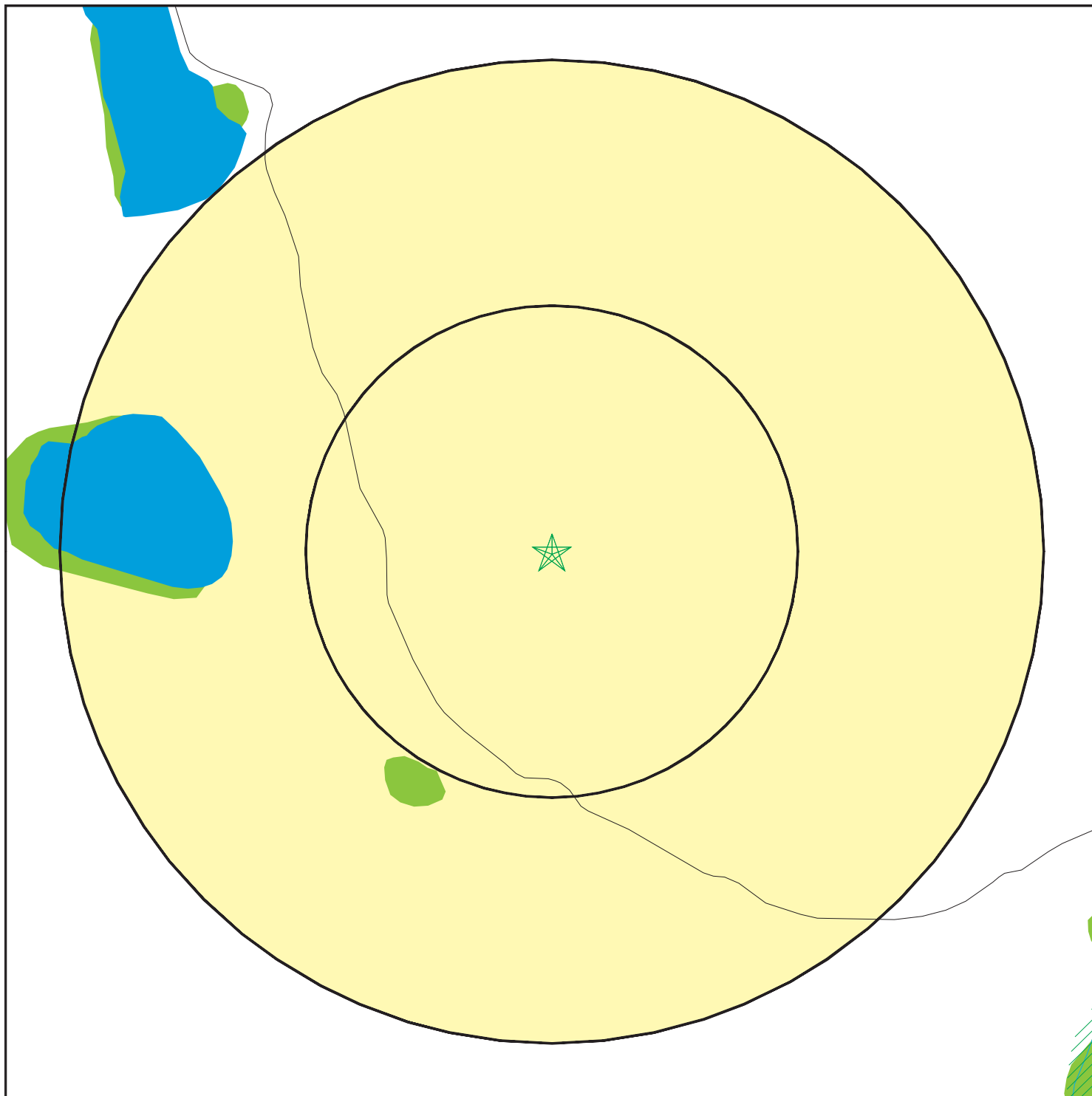


This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: CCWD Denniston / San Vicente  
 ADDRESS: 1862 Etheldore Street  
 Half Moon Bay CA 94019  
 LAT/LONG: 37.5225 / 122.4944

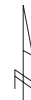
CLIENT: Analytical Environmental Serv.  
 CONTACT: David Sawyer  
 INQUIRY #: 3280408.2s  
 DATE: March 19, 2012 2:05 pm

# DETAIL MAP - 3280408.2s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites

- ☒ Indian Reservations BIA
- ⚡ Oil & Gas pipelines from USGS
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory
- ☒ Areas of Concern



This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: CCWD Denniston / San Vicente  
 ADDRESS: 1862 Etheldore Street  
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CLIENT: Analytical Environmental Serv.  
 CONTACT: David Sawyer  
 INQUIRY #: 3280408.2s  
 DATE: March 19, 2012 2:05 pm

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
<b>STANDARD ENVIRONMENTAL RECORDS</b>								
<b><i>Federal NPL site list</i></b>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
<b><i>Federal Delisted NPL site list</i></b>								
Delisted NPL	1.000		0	0	0	0	NR	0
<b><i>Federal CERCLIS list</i></b>								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	1.000		0	0	0	0	NR	0
<b><i>Federal CERCLIS NFRAP site List</i></b>								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
<b><i>Federal RCRA CORRACTS facilities list</i></b>								
CORRACTS	1.000		0	0	0	0	NR	0
<b><i>Federal RCRA non-CORRACTS TSD facilities list</i></b>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<b><i>Federal RCRA generators list</i></b>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
<b><i>Federal institutional controls / engineering controls registries</i></b>								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
<b><i>Federal ERNS list</i></b>								
ERNS	TP		NR	NR	NR	NR	NR	0
<b><i>State- and tribal - equivalent NPL</i></b>								
RESPONSE	1.000		0	0	0	0	NR	0
<b><i>State- and tribal - equivalent CERCLIS</i></b>								
ENVIROSTOR	1.000		0	0	0	0	NR	0
<b><i>State and tribal landfill and/or solid waste disposal site lists</i></b>								
SWF/LF	0.500		0	0	0	NR	NR	0
<b><i>State and tribal leaking storage tank lists</i></b>								
LUST	0.500		0	0	0	NR	NR	0
SLIC	0.500		0	0	0	NR	NR	0

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
<b><i>State and tribal registered storage tank lists</i></b>								
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
<b><i>State and tribal voluntary cleanup sites</i></b>								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
<b><u>ADDITIONAL ENVIRONMENTAL RECORDS</u></b>								
<b><i>Local Brownfield lists</i></b>								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
<b><i>Local Lists of Landfill / Solid Waste Disposal Sites</i></b>								
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
<b><i>Local Lists of Hazardous waste / Contaminated Sites</i></b>								
US CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
<b><i>Local Lists of Registered Storage Tanks</i></b>								
CA FID UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
SWEEPS UST	0.250		0	0	NR	NR	NR	0
<b><i>Local Land Records</i></b>								
LIENS 2	TP		NR	NR	NR	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
LIENS	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
<b><i>Records of Emergency Release Reports</i></b>								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0



## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MCS	TP		NR	NR	NR	NR	NR	0
<b>Other Ascertainable Records</b>								
RCRA-NonGen	0.250		0	0	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	1	NR	1
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
Cortese	0.500		0	0	0	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
San Mateo Co. BI	0.250		0	0	NR	NR	NR	0
HAZNET	TP		NR	NR	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
FINANCIAL ASSURANCE	TP		NR	NR	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
HWT	0.250		0	0	NR	NR	NR	0
<b>EDR PROPRIETARY RECORDS</b>								
<b>EDR Proprietary Records</b>								
Manufactured Gas Plants	1.000		0	0	0	0	NR	0
EDR Historical Auto Stations	0.250		0	0	NR	NR	NR	0

## MAP FINDINGS SUMMARY

<u>Database</u>	<u>Search Distance (Miles)</u>	<u>Target Property</u>	<u>&lt; 1/8</u>	<u>1/8 - 1/4</u>	<u>1/4 - 1/2</u>	<u>1/2 - 1</u>	<u>&gt; 1</u>	<u>Total Plotted</u>
EDR Historical Cleaners	0.250		0	0	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

1  
SSW  
1/2-1  
0.635 mi.  
3352 ft.

HALF MOON BAY FLIGHT STRIP  
MOSS BEACH, CA

FUDS 1009484686  
N/A

Relative:  
Lower

FUDS:

Federal Facility ID: CA9799F5756  
FUDS #: J09CA0820  
INST ID: 58091  
Facility Name: Half Moon Bay Flight Strip  
City: Moss Beach  
State: CA  
EPA Region: 9  
County: SAN MATEO  
Congressional District: 12  
US Army District: Sacramento District (SPK)  
Fiscal Year: 2009  
Telephone: 916-557-7461  
NPL Status: Not Listed  
RAB: Not reported  
CTC: 1.96882  
Current Owner: COUNTY

Actual:  
40 ft.

FUDS Description Details:

Improvements left included 2 USTs, 7 concrete undergrnd fuel pump pits, 2 exposed conc sumps, conc support for aboveground tank with assoc piping, and several buildings foundations. Improvements installed since DOD use or left by DOD include several hangars, an admin bldg, 2 underground jet fuel tanks and the airstrip.

FUDS History Details:

By authoriz dated 15 Oct 1942, the War Dept acquired 217.68 acres by fee, 11.78 by lease, & 110.76 by transfer. Total acres 340.22. In addition, 47 "no area" glide permits were obtained under license agreement. The leased acres were terminated from 27 Jun to 13 Jul 1944, 110.76 acres were retransferred to Fed Works Agency on 12 Apr 1946, & 217.68 acres were excessed to the War Assets Admin on 4 Feb 1947. Improvements include flight strip, 2 USTs, 7 underground fuel pump pits, 2 conc sumps.

FUDS Current Program Details:

FUDS Future Program Details:

Count: 29 records.

## ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
HALF MOON BAY	S105023993	PAPAS GEORGES	2320 HWY 1	94019	HIST CORTESE, San Mateo Co. BI
HALF MOON BAY	S106797820	RICE TRUCKING	2119 HWY 1	94019	San Mateo Co. BI
HALF MOON BAY	S106981737	ERICA NURSERY	RT 1	94019	San Mateo Co. BI
HALF MOON BAY	S106981993	PODESTA RANGE	2351 HWY 1	94019	San Mateo Co. BI
HALF MOON BAY	S102268107	BAY CHEVRON SERVICE #7927	375 HWY 1	94019	San Mateo Co. BI
HALF MOON BAY	S106798038	GREENHOUSE CLEANERS	80 HWY 1	94019	San Mateo Co. BI
HALF MOON BAY	A100337515	RICE TRUCKING	2119 HWY 1	94019	AST
HALF MOON BAY	A100338462	MAIN RANGE/SOUTH RANGE	2265 HWY 1	94019	AST
HALF MOON BAY	S110376342	AZEVEDO FEED & TRUCKING	2415 HWY 1	94019	San Mateo Co. BI
HALF MOON BAY	S110275383	CAL TRANS HMB MAIN STATION	2203 HWY 1	94019	San Mateo Co. BI
HALF MOON BAY	S110275396	SPRINT NEXTEL- HALF MOON BAY AIRPO	HWY 1	94019	San Mateo Co. BI
HALF MOON BAY	S106927559	ITTCW COASTAL MARINE STAT KFS	HWY 1 & MEYN RD	94019	SWEEPS UST
HALF MOON BAY	S106925756	EIRCA NURSERY	RTE 1 BOX 37K, ERICA RD	94019	SWEEPS UST
HALF MOON BAY	S103439234	CORINDA LOS TRANCOS LNDFL	HWY 92	94019	WDS, WMUDS/SWAT, NPDES, ENF
HALF MOON BAY	S106797780	CALIFORNIA EVERGREEN RANGE	HWY 92	94019	San Mateo Co. BI
HALF MOON BAY	S106929244	MCCAHON NURSERY COMPANY	1450 CABRILLO HWY. SOUTH/P.O.	94019	SWEEPS UST
HALF MOON BAY	S106981838	RESIDENCE	1600 N CABRILLO HWY	94019	San Mateo Co. BI
HALF MOON BAY	S103892469	GIUSTI FARMS	2475 CABRILLO HWY N	94019	San Mateo Co. BI
HALF MOON BAY	S110711884	CALTRANS MAINTENANCE FACILITY	2203 S CABRILLO HWY	94019	LUST
HALF MOON BAY	1003879004	SOUTH HALF MOON BAY	HALF MOON BAY	94019	CERC-NFRAP
MOSS BEACH	U001594289	SUPER-7 #18827	HIGHWAY #1	94038	HIST UST
MOSS BEACH	S106798111	MOSS BEACH CHEVRON	HWY 1	94038	San Mateo Co. BI
MOSS BEACH	A100339019	HALF MOON BAY AIRPORT	46 HWY 1	94038	AST
MOSS BEACH	S110275382	HALF MOON BAY AIRPORT	9850 HWY 1	94038	San Mateo Co. BI
MOSS BEACH	S106981100	HALF MOON BAY AERO	COAST HWY	94038	San Mateo Co. BI
MOSS BEACH	1000251418	PACIFIC BELL	ETHELDORE STREET	94038	RCRA-SQG, FINDS
MOSS BEACH	S111287917	AMERICAN TOWER SITE#8630- MONTARA	MCNEE STATE PARK KIKING TRL	94038	San Mateo Co. BI
MOSS BEACH	S106798108	MONTARA PEAK-SITE 8063	MCNESS STATE PARK TRL	94038	San Mateo Co. BI
SAN MATEO COUNTY	2008884331	CLOSE TO SAN FRANCISCO INTERNATION	CLOSE TO SAN FRANCISCO INTERNA		ERNS

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

## STANDARD ENVIRONMENTAL RECORDS

### ***Federal NPL site list***

#### **NPL: National Priority List**

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 09/07/2011	Source: EPA
Date Data Arrived at EDR: 10/12/2011	Telephone: N/A
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 03/15/2012
Number of Days to Update: 141	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Quarterly

#### **NPL Site Boundaries**

##### **Sources:**

EPA's Environmental Photographic Interpretation Center (EPIC)  
Telephone: 202-564-7333

EPA Region 1  
Telephone 617-918-1143

EPA Region 6  
Telephone: 214-655-6659

EPA Region 3  
Telephone 215-814-5418

EPA Region 7  
Telephone: 913-551-7247

EPA Region 4  
Telephone 404-562-8033

EPA Region 8  
Telephone: 303-312-6774

EPA Region 5  
Telephone 312-886-6686

EPA Region 9  
Telephone: 415-947-4246

EPA Region 10  
Telephone 206-553-8665

#### **Proposed NPL: Proposed National Priority List Sites**

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 09/07/2011	Source: EPA
Date Data Arrived at EDR: 10/12/2011	Telephone: N/A
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 03/15/2012
Number of Days to Update: 141	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Quarterly

#### **NPL LIENS: Federal Superfund Liens**

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ***Federal Delisted NPL site list***

### DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 09/07/2011	Source: EPA
Date Data Arrived at EDR: 10/12/2011	Telephone: N/A
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 03/15/2012
Number of Days to Update: 141	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Quarterly

## ***Federal CERCLIS list***

### CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 12/27/2011	Source: EPA
Date Data Arrived at EDR: 02/27/2012	Telephone: 703-412-9810
Date Made Active in Reports: 03/12/2012	Last EDR Contact: 02/27/2012
Number of Days to Update: 14	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Quarterly

### FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/10/2010	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/11/2011	Telephone: 703-603-8704
Date Made Active in Reports: 02/16/2011	Last EDR Contact: 01/13/2012
Number of Days to Update: 36	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Varies

## ***Federal CERCLIS NFRAP site List***

### CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 12/28/2011	Source: EPA
Date Data Arrived at EDR: 02/27/2012	Telephone: 703-412-9810
Date Made Active in Reports: 03/12/2012	Last EDR Contact: 02/27/2012
Number of Days to Update: 14	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Quarterly

## ***Federal RCRA CORRACTS facilities list***

### CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/19/2011  
Date Data Arrived at EDR: 08/31/2011  
Date Made Active in Reports: 01/10/2012  
Number of Days to Update: 132

Source: EPA  
Telephone: 800-424-9346  
Last EDR Contact: 02/13/2012  
Next Scheduled EDR Contact: 05/28/2012  
Data Release Frequency: Quarterly

## ***Federal RCRA non-CORRACTS TSD facilities list***

### **RCRA-TSDF: RCRA - Treatment, Storage and Disposal**

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 11/10/2011  
Date Data Arrived at EDR: 01/05/2012  
Date Made Active in Reports: 03/12/2012  
Number of Days to Update: 67

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 01/05/2012  
Next Scheduled EDR Contact: 04/16/2012  
Data Release Frequency: Quarterly

## ***Federal RCRA generators list***

### **RCRA-LQG: RCRA - Large Quantity Generators**

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 11/10/2011  
Date Data Arrived at EDR: 01/05/2012  
Date Made Active in Reports: 03/12/2012  
Number of Days to Update: 67

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 01/05/2012  
Next Scheduled EDR Contact: 04/16/2012  
Data Release Frequency: Quarterly

### **RCRA-SQG: RCRA - Small Quantity Generators**

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 11/10/2011  
Date Data Arrived at EDR: 01/05/2012  
Date Made Active in Reports: 03/12/2012  
Number of Days to Update: 67

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 01/05/2012  
Next Scheduled EDR Contact: 04/16/2012  
Data Release Frequency: Quarterly

### **RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators**

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 11/10/2011  
Date Data Arrived at EDR: 01/05/2012  
Date Made Active in Reports: 03/12/2012  
Number of Days to Update: 67

Source: Environmental Protection Agency  
Telephone: (415) 495-8895  
Last EDR Contact: 01/05/2012  
Next Scheduled EDR Contact: 04/16/2012  
Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ***Federal institutional controls / engineering controls registries***

### US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 12/30/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/30/2011	Telephone: 703-603-0695
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 03/12/2012
Number of Days to Update: 11	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Varies

### US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 12/30/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/30/2011	Telephone: 703-603-0695
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 03/12/2012
Number of Days to Update: 11	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Varies

## ***Federal ERNS list***

### ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 10/03/2011	Source: National Response Center, United States Coast Guard
Date Data Arrived at EDR: 10/04/2011	Telephone: 202-267-2180
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 01/18/2012
Number of Days to Update: 38	Next Scheduled EDR Contact: 04/16/2012
	Data Release Frequency: Annually

## ***State- and tribal - equivalent NPL***

### RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 02/07/2012	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 02/07/2012	Telephone: 916-323-3400
Date Made Active in Reports: 02/22/2012	Last EDR Contact: 03/15/2012
Number of Days to Update: 15	Next Scheduled EDR Contact: 05/21/2012
	Data Release Frequency: Quarterly

## ***State- and tribal - equivalent CERCLIS***

### ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/07/2012  
Date Data Arrived at EDR: 02/07/2012  
Date Made Active in Reports: 02/22/2012  
Number of Days to Update: 15

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 03/15/2012  
Next Scheduled EDR Contact: 05/21/2012  
Data Release Frequency: Quarterly

## **State and tribal landfill and/or solid waste disposal site lists**

### SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/21/2011  
Date Data Arrived at EDR: 11/22/2011  
Date Made Active in Reports: 12/13/2011  
Number of Days to Update: 21

Source: Department of Resources Recycling and Recovery  
Telephone: 916-341-6320  
Last EDR Contact: 02/20/2012  
Next Scheduled EDR Contact: 06/04/2012  
Data Release Frequency: Quarterly

## **State and tribal leaking storage tank lists**

### LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001  
Date Data Arrived at EDR: 04/23/2001  
Date Made Active in Reports: 05/21/2001  
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)  
Telephone: 858-637-5595  
Last EDR Contact: 09/26/2011  
Next Scheduled EDR Contact: 01/09/2012  
Data Release Frequency: No Update Planned

### LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004  
Date Data Arrived at EDR: 02/26/2004  
Date Made Active in Reports: 03/24/2004  
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)  
Telephone: 760-776-8943  
Last EDR Contact: 08/01/2011  
Next Scheduled EDR Contact: 11/14/2011  
Data Release Frequency: No Update Planned

### LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005  
Date Data Arrived at EDR: 06/07/2005  
Date Made Active in Reports: 06/29/2005  
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)  
Telephone: 760-241-7365  
Last EDR Contact: 09/12/2011  
Next Scheduled EDR Contact: 12/26/2011  
Data Release Frequency: No Update Planned

### LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003  
Date Data Arrived at EDR: 09/10/2003  
Date Made Active in Reports: 10/07/2003  
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)  
Telephone: 530-542-5572  
Last EDR Contact: 09/12/2011  
Next Scheduled EDR Contact: 12/26/2011  
Data Release Frequency: No Update Planned

### LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/01/2008  
Date Data Arrived at EDR: 07/22/2008  
Date Made Active in Reports: 07/31/2008  
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)  
Telephone: 916-464-4834  
Last EDR Contact: 07/01/2011  
Next Scheduled EDR Contact: 10/17/2011  
Data Release Frequency: Quarterly

## LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004  
Date Data Arrived at EDR: 09/07/2004  
Date Made Active in Reports: 10/12/2004  
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)  
Telephone: 213-576-6710  
Last EDR Contact: 09/06/2011  
Next Scheduled EDR Contact: 12/19/2011  
Data Release Frequency: No Update Planned

## LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003  
Date Data Arrived at EDR: 05/19/2003  
Date Made Active in Reports: 06/02/2003  
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)  
Telephone: 805-542-4786  
Last EDR Contact: 07/18/2011  
Next Scheduled EDR Contact: 10/31/2011  
Data Release Frequency: No Update Planned

## LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004  
Date Data Arrived at EDR: 10/20/2004  
Date Made Active in Reports: 11/19/2004  
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)  
Telephone: 510-622-2433  
Last EDR Contact: 09/19/2011  
Next Scheduled EDR Contact: 01/02/2012  
Data Release Frequency: Quarterly

## LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001  
Date Data Arrived at EDR: 02/28/2001  
Date Made Active in Reports: 03/29/2001  
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)  
Telephone: 707-570-3769  
Last EDR Contact: 08/01/2011  
Next Scheduled EDR Contact: 11/14/2011  
Data Release Frequency: No Update Planned

## LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 01/20/2012  
Date Data Arrived at EDR: 01/20/2012  
Date Made Active in Reports: 02/21/2012  
Number of Days to Update: 32

Source: State Water Resources Control Board  
Telephone: see region list  
Last EDR Contact: 01/20/2012  
Next Scheduled EDR Contact: 04/02/2012  
Data Release Frequency: Quarterly

## LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/14/2005  
Date Data Arrived at EDR: 02/15/2005  
Date Made Active in Reports: 03/28/2005  
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)  
Telephone: 909-782-4496  
Last EDR Contact: 08/15/2011  
Next Scheduled EDR Contact: 11/28/2011  
Data Release Frequency: Varies

## SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 01/20/2012  
Date Data Arrived at EDR: 01/20/2012  
Date Made Active in Reports: 02/21/2012  
Number of Days to Update: 32

Source: State Water Resources Control Board  
Telephone: 866-480-1028  
Last EDR Contact: 01/20/2012  
Next Scheduled EDR Contact: 04/02/2012  
Data Release Frequency: Varies

## SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003  
Date Data Arrived at EDR: 04/07/2003  
Date Made Active in Reports: 04/25/2003  
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)  
Telephone: 707-576-2220  
Last EDR Contact: 08/01/2011  
Next Scheduled EDR Contact: 11/14/2011  
Data Release Frequency: No Update Planned

## SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004  
Date Data Arrived at EDR: 10/20/2004  
Date Made Active in Reports: 11/19/2004  
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)  
Telephone: 510-286-0457  
Last EDR Contact: 09/19/2011  
Next Scheduled EDR Contact: 01/02/2012  
Data Release Frequency: Quarterly

## SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006  
Date Data Arrived at EDR: 05/18/2006  
Date Made Active in Reports: 06/15/2006  
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)  
Telephone: 805-549-3147  
Last EDR Contact: 07/18/2011  
Next Scheduled EDR Contact: 10/31/2011  
Data Release Frequency: Semi-Annually

## SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004  
Date Data Arrived at EDR: 11/18/2004  
Date Made Active in Reports: 01/04/2005  
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)  
Telephone: 213-576-6600  
Last EDR Contact: 07/01/2011  
Next Scheduled EDR Contact: 10/17/2011  
Data Release Frequency: Varies

## SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/01/2005  
Date Data Arrived at EDR: 04/05/2005  
Date Made Active in Reports: 04/21/2005  
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)  
Telephone: 916-464-3291  
Last EDR Contact: 09/12/2011  
Next Scheduled EDR Contact: 12/26/2011  
Data Release Frequency: Semi-Annually

## SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005  
Date Data Arrived at EDR: 05/25/2005  
Date Made Active in Reports: 06/16/2005  
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch  
Telephone: 619-241-6583  
Last EDR Contact: 08/15/2011  
Next Scheduled EDR Contact: 11/28/2011  
Data Release Frequency: Semi-Annually

## SLIC REG 6L: SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004  
Date Data Arrived at EDR: 09/07/2004  
Date Made Active in Reports: 10/12/2004  
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region  
Telephone: 530-542-5574  
Last EDR Contact: 08/15/2011  
Next Scheduled EDR Contact: 11/28/2011  
Data Release Frequency: No Update Planned

## SLIC REG 7: SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004  
Date Data Arrived at EDR: 11/29/2004  
Date Made Active in Reports: 01/04/2005  
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region  
Telephone: 760-346-7491  
Last EDR Contact: 08/01/2011  
Next Scheduled EDR Contact: 11/14/2011  
Data Release Frequency: No Update Planned

## SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008  
Date Data Arrived at EDR: 04/03/2008  
Date Made Active in Reports: 04/14/2008  
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)  
Telephone: 951-782-3298  
Last EDR Contact: 09/12/2011  
Next Scheduled EDR Contact: 12/26/2011  
Data Release Frequency: Semi-Annually

## SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007  
Date Data Arrived at EDR: 09/11/2007  
Date Made Active in Reports: 09/28/2007  
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)  
Telephone: 858-467-2980  
Last EDR Contact: 08/08/2011  
Next Scheduled EDR Contact: 11/21/2011  
Data Release Frequency: Annually

## INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 11/02/2011	Source: EPA Region 10
Date Data Arrived at EDR: 11/04/2011	Telephone: 206-553-2857
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 7	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land  
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/01/2011	Source: EPA Region 1
Date Data Arrived at EDR: 11/01/2011	Telephone: 617-918-1313
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 02/03/2012
Number of Days to Update: 10	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/18/2011	Source: EPA Region 8
Date Data Arrived at EDR: 08/19/2011	Telephone: 303-312-6271
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 25	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011	Source: EPA Region 6
Date Data Arrived at EDR: 09/13/2011	Telephone: 214-665-6597
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 59	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 12/14/2011	Source: EPA Region 4
Date Data Arrived at EDR: 12/15/2011	Telephone: 404-562-8677
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 01/30/2012
Number of Days to Update: 26	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Semi-Annually

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 12/05/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/07/2011	Telephone: 415-972-3372
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 01/30/2012
Number of Days to Update: 34	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land  
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 11/01/2011	Source: EPA Region 7
Date Data Arrived at EDR: 11/21/2011	Telephone: 913-551-7003
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 01/30/2012
Number of Days to Update: 50	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Varies

***State and tribal registered storage tank lists***

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 01/20/2012	Source: SWRCB
Date Data Arrived at EDR: 01/20/2012	Telephone: 916-480-1028
Date Made Active in Reports: 02/22/2012	Last EDR Contact: 01/20/2012
Number of Days to Update: 33	Next Scheduled EDR Contact: 04/02/2012
	Data Release Frequency: Semi-Annually

### AST: Aboveground Petroleum Storage Tank Facilities

Registered Aboveground Storage Tanks.

Date of Government Version: 08/01/2009	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/10/2009	Telephone: 916-341-5712
Date Made Active in Reports: 10/01/2009	Last EDR Contact: 01/23/2012
Number of Days to Update: 21	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Quarterly

### INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/02/2011	Source: EPA Region 10
Date Data Arrived at EDR: 11/04/2011	Telephone: 206-553-2857
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 7	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Quarterly

### INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 11/28/2011	Source: EPA Region 9
Date Data Arrived at EDR: 11/29/2011	Telephone: 415-972-3368
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 01/30/2012
Number of Days to Update: 42	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Quarterly

### INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/18/2011	Source: EPA Region 8
Date Data Arrived at EDR: 08/19/2011	Telephone: 303-312-6137
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 25	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Quarterly

### INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 11/01/2011	Source: EPA Region 7
Date Data Arrived at EDR: 11/21/2011	Telephone: 913-551-7003
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 01/30/2012
Number of Days to Update: 50	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Varies

### INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/10/2011  
Date Data Arrived at EDR: 05/11/2011  
Date Made Active in Reports: 06/14/2011  
Number of Days to Update: 34

Source: EPA Region 6  
Telephone: 214-665-7591  
Last EDR Contact: 01/30/2012  
Next Scheduled EDR Contact: 05/14/2012  
Data Release Frequency: Semi-Annually

## INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 07/01/2011  
Date Data Arrived at EDR: 08/26/2011  
Date Made Active in Reports: 09/13/2011  
Number of Days to Update: 18

Source: EPA Region 5  
Telephone: 312-886-6136  
Last EDR Contact: 01/30/2012  
Next Scheduled EDR Contact: 05/14/2012  
Data Release Frequency: Varies

## INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 12/14/2011  
Date Data Arrived at EDR: 12/15/2011  
Date Made Active in Reports: 01/10/2012  
Number of Days to Update: 26

Source: EPA Region 4  
Telephone: 404-562-9424  
Last EDR Contact: 01/30/2012  
Next Scheduled EDR Contact: 05/14/2012  
Data Release Frequency: Semi-Annually

## INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/01/2011  
Date Data Arrived at EDR: 11/01/2011  
Date Made Active in Reports: 11/11/2011  
Number of Days to Update: 10

Source: EPA, Region 1  
Telephone: 617-918-1313  
Last EDR Contact: 02/03/2012  
Next Scheduled EDR Contact: 05/14/2012  
Data Release Frequency: Varies

## FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010  
Date Data Arrived at EDR: 02/16/2010  
Date Made Active in Reports: 04/12/2010  
Number of Days to Update: 55

Source: FEMA  
Telephone: 202-646-5797  
Last EDR Contact: 01/16/2012  
Next Scheduled EDR Contact: 04/30/2012  
Data Release Frequency: Varies

## **State and tribal voluntary cleanup sites**

### INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008  
Date Data Arrived at EDR: 04/22/2008  
Date Made Active in Reports: 05/19/2008  
Number of Days to Update: 27

Source: EPA, Region 7  
Telephone: 913-551-7365  
Last EDR Contact: 04/20/2009  
Next Scheduled EDR Contact: 07/20/2009  
Data Release Frequency: Varies

### VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/07/2012  
Date Data Arrived at EDR: 02/07/2012  
Date Made Active in Reports: 02/22/2012  
Number of Days to Update: 15

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 03/15/2012  
Next Scheduled EDR Contact: 05/21/2012  
Data Release Frequency: Quarterly

## INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 08/04/2011  
Date Data Arrived at EDR: 10/04/2011  
Date Made Active in Reports: 11/11/2011  
Number of Days to Update: 38

Source: EPA, Region 1  
Telephone: 617-918-1102  
Last EDR Contact: 01/06/2012  
Next Scheduled EDR Contact: 04/16/2012  
Data Release Frequency: Varies

## ADDITIONAL ENVIRONMENTAL RECORDS

### **Local Brownfield lists**

#### US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/27/2011  
Date Data Arrived at EDR: 06/27/2011  
Date Made Active in Reports: 09/13/2011  
Number of Days to Update: 78

Source: Environmental Protection Agency  
Telephone: 202-566-2777  
Last EDR Contact: 12/27/2011  
Next Scheduled EDR Contact: 04/09/2012  
Data Release Frequency: Semi-Annually

### **Local Lists of Landfill / Solid Waste Disposal Sites**

#### ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985  
Date Data Arrived at EDR: 08/09/2004  
Date Made Active in Reports: 09/17/2004  
Number of Days to Update: 39

Source: Environmental Protection Agency  
Telephone: 800-424-9346  
Last EDR Contact: 06/09/2004  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

#### DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009  
Date Data Arrived at EDR: 05/07/2009  
Date Made Active in Reports: 09/21/2009  
Number of Days to Update: 137

Source: EPA, Region 9  
Telephone: 415-947-4219  
Last EDR Contact: 12/21/2011  
Next Scheduled EDR Contact: 04/09/2012  
Data Release Frequency: No Update Planned

#### WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/01/2000  
Date Data Arrived at EDR: 04/10/2000  
Date Made Active in Reports: 05/10/2000  
Number of Days to Update: 30

Source: State Water Resources Control Board  
Telephone: 916-227-4448  
Last EDR Contact: 02/13/2012  
Next Scheduled EDR Contact: 05/28/2012  
Data Release Frequency: No Update Planned

## SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 12/12/2011  
Date Data Arrived at EDR: 12/19/2011  
Date Made Active in Reports: 01/19/2012  
Number of Days to Update: 31

Source: Department of Conservation  
Telephone: 916-323-3836  
Last EDR Contact: 12/19/2011  
Next Scheduled EDR Contact: 04/02/2012  
Data Release Frequency: Quarterly

## HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 01/20/2012  
Date Data Arrived at EDR: 01/24/2012  
Date Made Active in Reports: 02/21/2012  
Number of Days to Update: 28

Source: Integrated Waste Management Board  
Telephone: 916-341-6422  
Last EDR Contact: 03/12/2012  
Next Scheduled EDR Contact: 06/04/2012  
Data Release Frequency: Varies

## INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998  
Date Data Arrived at EDR: 12/03/2007  
Date Made Active in Reports: 01/24/2008  
Number of Days to Update: 52

Source: Environmental Protection Agency  
Telephone: 703-308-8245  
Last EDR Contact: 02/06/2012  
Next Scheduled EDR Contact: 05/21/2012  
Data Release Frequency: Varies

## **Local Lists of Hazardous waste / Contaminated Sites**

### US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 10/07/2011  
Date Data Arrived at EDR: 12/09/2011  
Date Made Active in Reports: 01/10/2012  
Number of Days to Update: 32

Source: Drug Enforcement Administration  
Telephone: 202-307-1000  
Last EDR Contact: 03/06/2012  
Next Scheduled EDR Contact: 06/18/2012  
Data Release Frequency: Quarterly

### HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005  
Date Data Arrived at EDR: 08/03/2006  
Date Made Active in Reports: 08/24/2006  
Number of Days to Update: 21

Source: Department of Toxic Substance Control  
Telephone: 916-323-3400  
Last EDR Contact: 02/23/2009  
Next Scheduled EDR Contact: 05/25/2009  
Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 02/07/2012	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 02/07/2012	Telephone: 916-323-3400
Date Made Active in Reports: 02/22/2012	Last EDR Contact: 03/15/2012
Number of Days to Update: 15	Next Scheduled EDR Contact: 05/21/2012
	Data Release Frequency: Quarterly

## TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995	Source: State Water Resources Control Board
Date Data Arrived at EDR: 08/30/1995	Telephone: 916-227-4364
Date Made Active in Reports: 09/26/1995	Last EDR Contact: 01/26/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 04/27/2009
	Data Release Frequency: No Update Planned

## CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2011	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 02/14/2012	Telephone: 916-255-6504
Date Made Active in Reports: 02/21/2012	Last EDR Contact: 02/07/2012
Number of Days to Update: 7	Next Scheduled EDR Contact: 04/16/2012
	Data Release Frequency: Varies

## US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 11/19/2008	Telephone: 202-307-1000
Date Made Active in Reports: 03/30/2009	Last EDR Contact: 03/23/2009
Number of Days to Update: 131	Next Scheduled EDR Contact: 06/22/2009
	Data Release Frequency: No Update Planned

## **Local Lists of Registered Storage Tanks**

### CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 09/05/1995	Telephone: 916-341-5851
Date Made Active in Reports: 09/29/1995	Last EDR Contact: 12/28/1998
Number of Days to Update: 24	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

### UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/23/2009  
Date Data Arrived at EDR: 09/23/2009  
Date Made Active in Reports: 10/01/2009  
Number of Days to Update: 8

Source: Department of Public Health  
Telephone: 707-463-4466  
Last EDR Contact: 12/05/2012  
Next Scheduled EDR Contact: 06/18/2012  
Data Release Frequency: Annually

## HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990  
Date Data Arrived at EDR: 01/25/1991  
Date Made Active in Reports: 02/12/1991  
Number of Days to Update: 18

Source: State Water Resources Control Board  
Telephone: 916-341-5851  
Last EDR Contact: 07/26/2001  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994  
Date Data Arrived at EDR: 07/07/2005  
Date Made Active in Reports: 08/11/2005  
Number of Days to Update: 35

Source: State Water Resources Control Board  
Telephone: N/A  
Last EDR Contact: 06/03/2005  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## Local Land Records

### LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 09/09/2011  
Date Data Arrived at EDR: 09/16/2011  
Date Made Active in Reports: 09/29/2011  
Number of Days to Update: 13

Source: Environmental Protection Agency  
Telephone: 202-564-6023  
Last EDR Contact: 01/30/2012  
Next Scheduled EDR Contact: 05/14/2012  
Data Release Frequency: Varies

### LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005  
Date Data Arrived at EDR: 12/11/2006  
Date Made Active in Reports: 01/11/2007  
Number of Days to Update: 31

Source: Department of the Navy  
Telephone: 843-820-7326  
Last EDR Contact: 02/20/2012  
Next Scheduled EDR Contact: 06/04/2012  
Data Release Frequency: Varies

### LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 12/16/2011  
Date Data Arrived at EDR: 12/16/2011  
Date Made Active in Reports: 01/19/2012  
Number of Days to Update: 34

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 03/12/2012  
Next Scheduled EDR Contact: 06/25/2012  
Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 12/12/2011	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 12/13/2011	Telephone: 916-323-3400
Date Made Active in Reports: 01/19/2012	Last EDR Contact: 03/13/2012
Number of Days to Update: 37	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Semi-Annually

## **Records of Emergency Release Reports**

### HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 10/04/2011	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 10/04/2011	Telephone: 202-366-4555
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 01/03/2012
Number of Days to Update: 38	Next Scheduled EDR Contact: 04/16/2012
	Data Release Frequency: Annually

### CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2010	Source: Office of Emergency Services
Date Data Arrived at EDR: 05/03/2011	Telephone: 916-845-8400
Date Made Active in Reports: 06/15/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 43	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Varies

### LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 01/20/2012	Source: State Water Quality Control Board
Date Data Arrived at EDR: 01/20/2012	Telephone: 866-480-1028
Date Made Active in Reports: 02/21/2012	Last EDR Contact: 01/20/2012
Number of Days to Update: 32	Next Scheduled EDR Contact: 04/02/2012
	Data Release Frequency: Quarterly

### MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 01/20/2012	Source: State Water Resources Control Board
Date Data Arrived at EDR: 01/20/2012	Telephone: 866-480-1028
Date Made Active in Reports: 02/21/2012	Last EDR Contact: 01/20/2012
Number of Days to Update: 32	Next Scheduled EDR Contact: 04/02/2012
	Data Release Frequency: Quarterly

## **Other Ascertainable Records**

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## RCRA-NonGen: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 11/10/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/05/2012	Telephone: (415) 495-8895
Date Made Active in Reports: 03/12/2012	Last EDR Contact: 01/05/2012
Number of Days to Update: 67	Next Scheduled EDR Contact: 04/16/2012
	Data Release Frequency: Varies

## DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/29/2011	Source: Department of Transportation, Office of Pipeline Safety
Date Data Arrived at EDR: 08/09/2011	Telephone: 202-366-4595
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 02/07/2012
Number of Days to Update: 94	Next Scheduled EDR Contact: 05/21/2012
	Data Release Frequency: Varies

## DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 11/10/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 01/20/2012
Number of Days to Update: 62	Next Scheduled EDR Contact: 04/30/2012
	Data Release Frequency: Semi-Annually

## FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2009	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 08/12/2010	Telephone: 202-528-4285
Date Made Active in Reports: 12/02/2010	Last EDR Contact: 03/12/2012
Number of Days to Update: 112	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Varies

## CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/01/2011	Source: Department of Justice, Consent Decree Library
Date Data Arrived at EDR: 01/25/2012	Telephone: Varies
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 12/27/2011
Number of Days to Update: 36	Next Scheduled EDR Contact: 04/16/2012
	Data Release Frequency: Varies

## ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 09/28/2011	Source: EPA
Date Data Arrived at EDR: 12/14/2011	Telephone: 703-416-0223
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 03/14/2012
Number of Days to Update: 27	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010	Source: Department of Energy
Date Data Arrived at EDR: 10/07/2011	Telephone: 505-845-0011
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 02/28/2012
Number of Days to Update: 146	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Varies

## MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/18/2011	Source: Department of Labor, Mine Safety and Health Administration
Date Data Arrived at EDR: 09/08/2011	Telephone: 303-231-5959
Date Made Active in Reports: 09/29/2011	Last EDR Contact: 03/07/2012
Number of Days to Update: 21	Next Scheduled EDR Contact: 06/18/2012
	Data Release Frequency: Semi-Annually

## TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009	Source: EPA
Date Data Arrived at EDR: 09/01/2011	Telephone: 202-566-0250
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 02/28/2012
Number of Days to Update: 131	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Annually

## TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006	Source: EPA
Date Data Arrived at EDR: 09/29/2010	Telephone: 202-260-5521
Date Made Active in Reports: 12/02/2010	Last EDR Contact: 12/27/2011
Number of Days to Update: 64	Next Scheduled EDR Contact: 04/09/2012
	Data Release Frequency: Every 4 Years

## FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 02/27/2012
Number of Days to Update: 25	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Quarterly

## FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 02/27/2012
Number of Days to Update: 25	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

## HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2008
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

## SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009	Source: EPA
Date Data Arrived at EDR: 12/10/2010	Telephone: 202-564-4203
Date Made Active in Reports: 02/25/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 77	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Annually

## ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/10/2011	Telephone: 202-564-5088
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 12/21/2011
Number of Days to Update: 61	Next Scheduled EDR Contact: 04/09/2012
	Data Release Frequency: Quarterly

## PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2010	Source: EPA
Date Data Arrived at EDR: 11/10/2010	Telephone: 202-566-0500
Date Made Active in Reports: 02/16/2011	Last EDR Contact: 01/20/2012
Number of Days to Update: 98	Next Scheduled EDR Contact: 04/30/2012
	Data Release Frequency: Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/21/2011	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 07/15/2011	Telephone: 301-415-7169
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 03/12/2012
Number of Days to Update: 60	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Quarterly

## RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/10/2012	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/12/2012	Telephone: 202-343-9775
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 01/12/2012
Number of Days to Update: 49	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Quarterly

## FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 10/23/2011	Source: EPA
Date Data Arrived at EDR: 12/13/2011	Telephone: (415) 947-8000
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 03/13/2012
Number of Days to Update: 79	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Quarterly

## RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995	Source: EPA
Date Data Arrived at EDR: 07/03/1995	Telephone: 202-564-4104
Date Made Active in Reports: 08/07/1995	Last EDR Contact: 06/02/2008
Number of Days to Update: 35	Next Scheduled EDR Contact: 09/01/2008
	Data Release Frequency: No Update Planned

## BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2009	Source: EPA/NTIS
Date Data Arrived at EDR: 03/01/2011	Telephone: 800-424-9346
Date Made Active in Reports: 05/02/2011	Last EDR Contact: 02/27/2012
Number of Days to Update: 62	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Biennially



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989  
Date Data Arrived at EDR: 07/27/1994  
Date Made Active in Reports: 08/02/1994  
Number of Days to Update: 6

Source: Department of Health Services  
Telephone: 916-255-2118  
Last EDR Contact: 05/31/1994  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007  
Date Data Arrived at EDR: 06/20/2007  
Date Made Active in Reports: 06/29/2007  
Number of Days to Update: 9

Source: State Water Resources Control Board  
Telephone: 916-341-5227  
Last EDR Contact: 02/27/2012  
Next Scheduled EDR Contact: 06/11/2012  
Data Release Frequency: Quarterly

## NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 11/21/2011  
Date Data Arrived at EDR: 11/22/2011  
Date Made Active in Reports: 12/13/2011  
Number of Days to Update: 21

Source: State Water Resources Control Board  
Telephone: 916-445-9379  
Last EDR Contact: 02/20/2012  
Next Scheduled EDR Contact: 06/04/2012  
Data Release Frequency: Quarterly

## CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 01/03/2012  
Date Data Arrived at EDR: 01/03/2012  
Date Made Active in Reports: 01/19/2012  
Number of Days to Update: 16

Source: CAL EPA/Office of Emergency Information  
Telephone: 916-323-3400  
Last EDR Contact: 01/03/2012  
Next Scheduled EDR Contact: 04/16/2012  
Data Release Frequency: Quarterly

## HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CAL SITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001  
Date Data Arrived at EDR: 01/22/2009  
Date Made Active in Reports: 04/08/2009  
Number of Days to Update: 76

Source: Department of Toxic Substances Control  
Telephone: 916-323-3400  
Last EDR Contact: 01/22/2009  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993  
Date Data Arrived at EDR: 11/01/1993  
Date Made Active in Reports: 11/19/1993  
Number of Days to Update: 18

Source: State Water Resources Control Board  
Telephone: 916-445-3846  
Last EDR Contact: 12/20/2011  
Next Scheduled EDR Contact: 04/09/2012  
Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 01/19/2012	Source: Department of Toxic Substance Control
Date Data Arrived at EDR: 01/19/2012	Telephone: 916-327-4498
Date Made Active in Reports: 02/21/2012	Last EDR Contact: 03/12/2012
Number of Days to Update: 33	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Annually

## WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009	Source: Los Angeles Water Quality Control Board
Date Data Arrived at EDR: 07/21/2009	Telephone: 213-576-6726
Date Made Active in Reports: 08/03/2009	Last EDR Contact: 01/23/2012
Number of Days to Update: 13	Next Scheduled EDR Contact: 04/16/2012
	Data Release Frequency: Varies

## ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 08/15/2011	Source: State Water Resources Control Board
Date Data Arrived at EDR: 08/23/2011	Telephone: 916-445-9379
Date Made Active in Reports: 10/03/2011	Last EDR Contact: 02/20/2012
Number of Days to Update: 41	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Varies

## HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2010	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 07/19/2011	Telephone: 916-255-1136
Date Made Active in Reports: 08/16/2011	Last EDR Contact: 01/20/2012
Number of Days to Update: 28	Next Scheduled EDR Contact: 04/30/2012
	Data Release Frequency: Annually

## EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2008	Source: California Air Resources Board
Date Data Arrived at EDR: 09/29/2010	Telephone: 916-322-2990
Date Made Active in Reports: 10/18/2010	Last EDR Contact: 12/30/2011
Number of Days to Update: 19	Next Scheduled EDR Contact: 04/09/2012
	Data Release Frequency: Varies

## INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 12/08/2006	Telephone: 202-208-3710
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 01/20/2012
Number of Days to Update: 34	Next Scheduled EDR Contact: 04/30/2012
	Data Release Frequency: Semi-Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/09/2011	Telephone: 615-532-8599
Date Made Active in Reports: 05/02/2011	Last EDR Contact: 02/06/2012
Number of Days to Update: 54	Next Scheduled EDR Contact: 05/07/2012
	Data Release Frequency: Varies

## PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 12/12/2011	Source: Department of Conservation
Date Data Arrived at EDR: 12/19/2011	Telephone: 916-323-3836
Date Made Active in Reports: 01/19/2012	Last EDR Contact: 12/19/2011
Number of Days to Update: 31	Next Scheduled EDR Contact: 04/02/2012
	Data Release Frequency: Quarterly

## MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 12/07/2011	Source: Department of Public Health
Date Data Arrived at EDR: 12/15/2011	Telephone: 916-558-1784
Date Made Active in Reports: 01/19/2012	Last EDR Contact: 03/12/2012
Number of Days to Update: 35	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Varies

## COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005	Source: Department of Energy
Date Data Arrived at EDR: 08/07/2009	Telephone: 202-586-8719
Date Made Active in Reports: 10/22/2009	Last EDR Contact: 01/18/2012
Number of Days to Update: 76	Next Scheduled EDR Contact: 04/30/2012
	Data Release Frequency: Varies

## COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/03/2011	Telephone: N/A
Date Made Active in Reports: 03/21/2011	Last EDR Contact: 03/16/2012
Number of Days to Update: 77	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Varies

## HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/18/2012	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 01/18/2012	Telephone: 916-440-7145
Date Made Active in Reports: 02/21/2012	Last EDR Contact: 01/18/2012
Number of Days to Update: 34	Next Scheduled EDR Contact: 04/30/2012
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 08/09/2010	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 08/11/2010	Telephone: 916-323-3400
Date Made Active in Reports: 08/20/2010	Last EDR Contact: 12/02/2011
Number of Days to Update: 9	Next Scheduled EDR Contact: 03/12/2012
	Data Release Frequency: Quarterly

## FINANCIAL ASSURANCE 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/29/2011	Source: California Integrated Waste Management Board
Date Data Arrived at EDR: 11/30/2011	Telephone: 916-341-6066
Date Made Active in Reports: 12/13/2011	Last EDR Contact: 02/20/2012
Number of Days to Update: 13	Next Scheduled EDR Contact: 06/04/2012
	Data Release Frequency: Varies

## FINANCIAL ASSURANCE 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 03/01/2007	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 06/01/2007	Telephone: 916-255-3628
Date Made Active in Reports: 06/29/2007	Last EDR Contact: 02/03/2012
Number of Days to Update: 28	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Varies

## FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005	Source: U.S. Geological Survey
Date Data Arrived at EDR: 02/06/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 01/20/2012
Number of Days to Update: 339	Next Scheduled EDR Contact: 04/30/2012
	Data Release Frequency: N/A

## PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/19/2011	Telephone: 202-566-0517
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 02/03/2012
Number of Days to Update: 83	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Varies

## EDR PROPRIETARY RECORDS

### *EDR Proprietary Records*

#### Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## EDR Historical Auto Stations: EDR Proprietary Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

## EDR Historical Cleaners: EDR Proprietary Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

## COUNTY RECORDS

### ALAMEDA COUNTY:

#### Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/12/2012  
Date Data Arrived at EDR: 01/13/2012  
Date Made Active in Reports: 02/21/2012  
Number of Days to Update: 39

Source: Alameda County Environmental Health Services  
Telephone: 510-567-6700  
Last EDR Contact: 12/30/2011  
Next Scheduled EDR Contact: 04/16/2012  
Data Release Frequency: Semi-Annually

#### Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 01/12/2012  
Date Data Arrived at EDR: 01/13/2012  
Date Made Active in Reports: 02/24/2012  
Number of Days to Update: 42

Source: Alameda County Environmental Health Services  
Telephone: 510-567-6700  
Last EDR Contact: 12/30/2011  
Next Scheduled EDR Contact: 04/16/2012  
Data Release Frequency: Semi-Annually

### CONTRA COSTA COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/28/2011	Source: Contra Costa Health Services Department
Date Data Arrived at EDR: 11/29/2011	Telephone: 925-646-2286
Date Made Active in Reports: 12/13/2011	Last EDR Contact: 02/07/2012
Number of Days to Update: 14	Next Scheduled EDR Contact: 05/21/2012
	Data Release Frequency: Semi-Annually

## KERN COUNTY:

### Underground Storage Tank Sites & Tank Listing Kern County Sites and Tanks Listing.

Date of Government Version: 08/31/2010	Source: Kern County Environment Health Services Department
Date Data Arrived at EDR: 09/01/2010	Telephone: 661-862-8700
Date Made Active in Reports: 09/30/2010	Last EDR Contact: 03/16/2012
Number of Days to Update: 29	Next Scheduled EDR Contact: 05/28/2012
	Data Release Frequency: Quarterly

## LOS ANGELES COUNTY:

### San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009	Source: EPA Region 9
Date Data Arrived at EDR: 03/31/2009	Telephone: 415-972-3178
Date Made Active in Reports: 10/23/2009	Last EDR Contact: 12/20/2011
Number of Days to Update: 206	Next Scheduled EDR Contact: 04/09/2012
	Data Release Frequency: No Update Planned

### HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 09/29/2011	Source: Department of Public Works
Date Data Arrived at EDR: 12/15/2011	Telephone: 626-458-3517
Date Made Active in Reports: 01/19/2012	Last EDR Contact: 10/17/2011
Number of Days to Update: 35	Next Scheduled EDR Contact: 01/30/2012
	Data Release Frequency: Semi-Annually

### List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/23/2012	Source: La County Department of Public Works
Date Data Arrived at EDR: 01/24/2012	Telephone: 818-458-5185
Date Made Active in Reports: 02/21/2012	Last EDR Contact: 01/24/2012
Number of Days to Update: 28	Next Scheduled EDR Contact: 05/07/2012
	Data Release Frequency: Varies

### City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009	Source: Engineering & Construction Division
Date Data Arrived at EDR: 03/10/2009	Telephone: 213-473-7869
Date Made Active in Reports: 04/08/2009	Last EDR Contact: 11/17/2011
Number of Days to Update: 29	Next Scheduled EDR Contact: 03/05/2012
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 12/29/2011	Source: Community Health Services
Date Data Arrived at EDR: 02/02/2012	Telephone: 323-890-7806
Date Made Active in Reports: 02/21/2012	Last EDR Contact: 01/23/2012
Number of Days to Update: 19	Next Scheduled EDR Contact: 05/07/2012
	Data Release Frequency: Annually

## City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/23/2012	Source: City of El Segundo Fire Department
Date Data Arrived at EDR: 01/25/2012	Telephone: 310-524-2236
Date Made Active in Reports: 02/22/2012	Last EDR Contact: 01/23/2012
Number of Days to Update: 28	Next Scheduled EDR Contact: 04/06/2012
	Data Release Frequency: Semi-Annually

## City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003	Source: City of Long Beach Fire Department
Date Data Arrived at EDR: 10/23/2003	Telephone: 562-570-2563
Date Made Active in Reports: 11/26/2003	Last EDR Contact: 03/05/2012
Number of Days to Update: 34	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Annually

## City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/16/2012	Source: City of Torrance Fire Department
Date Data Arrived at EDR: 01/18/2012	Telephone: 310-618-2973
Date Made Active in Reports: 02/22/2012	Last EDR Contact: 01/16/2012
Number of Days to Update: 35	Next Scheduled EDR Contact: 04/30/2012
	Data Release Frequency: Semi-Annually

## MARIN COUNTY:

### Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 01/13/2012	Source: Public Works Department Waste Management
Date Data Arrived at EDR: 01/24/2012	Telephone: 415-499-6647
Date Made Active in Reports: 02/22/2012	Last EDR Contact: 01/09/2012
Number of Days to Update: 29	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Semi-Annually

## NAPA COUNTY:

### Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011	Source: Napa County Department of Environmental Management
Date Data Arrived at EDR: 12/06/2011	Telephone: 707-253-4269
Date Made Active in Reports: 02/07/2012	Last EDR Contact: 03/05/2012
Number of Days to Update: 63	Next Scheduled EDR Contact: 06/18/2012
	Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008  
Date Data Arrived at EDR: 01/16/2008  
Date Made Active in Reports: 02/08/2008  
Number of Days to Update: 23

Source: Napa County Department of Environmental Management  
Telephone: 707-253-4269  
Last EDR Contact: 12/05/2012  
Next Scheduled EDR Contact: 06/18/2012  
Data Release Frequency: No Update Planned

## ORANGE COUNTY:

### List of Industrial Site Cleanups

Petroleum and non-petroleum spills.

Date of Government Version: 02/01/2012  
Date Data Arrived at EDR: 02/17/2012  
Date Made Active in Reports: 02/21/2012  
Number of Days to Update: 4

Source: Health Care Agency  
Telephone: 714-834-3446  
Last EDR Contact: 02/13/2012  
Next Scheduled EDR Contact: 05/28/2012  
Data Release Frequency: Annually

### List of Underground Storage Tank Cleanups

Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 02/01/2012  
Date Data Arrived at EDR: 02/17/2012  
Date Made Active in Reports: 02/21/2012  
Number of Days to Update: 4

Source: Health Care Agency  
Telephone: 714-834-3446  
Last EDR Contact: 02/13/2012  
Next Scheduled EDR Contact: 05/28/2012  
Data Release Frequency: Quarterly

### List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 11/02/2011  
Date Data Arrived at EDR: 11/18/2011  
Date Made Active in Reports: 12/14/2011  
Number of Days to Update: 26

Source: Health Care Agency  
Telephone: 714-834-3446  
Last EDR Contact: 02/13/2012  
Next Scheduled EDR Contact: 05/28/2012  
Data Release Frequency: Quarterly

## PLACER COUNTY:

### Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 12/12/2011  
Date Data Arrived at EDR: 12/13/2011  
Date Made Active in Reports: 01/19/2012  
Number of Days to Update: 37

Source: Placer County Health and Human Services  
Telephone: 530-889-7312  
Last EDR Contact: 03/12/2012  
Next Scheduled EDR Contact: 06/25/2012  
Data Release Frequency: Semi-Annually

## RIVERSIDE COUNTY:

### Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 01/18/2012  
Date Data Arrived at EDR: 01/26/2012  
Date Made Active in Reports: 02/21/2012  
Number of Days to Update: 26

Source: Department of Environmental Health  
Telephone: 951-358-5055  
Last EDR Contact: 12/21/2011  
Next Scheduled EDR Contact: 04/09/2012  
Data Release Frequency: Quarterly



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 01/18/2012	Source: Department of Environmental Health
Date Data Arrived at EDR: 01/26/2012	Telephone: 951-358-5055
Date Made Active in Reports: 02/24/2012	Last EDR Contact: 12/21/2011
Number of Days to Update: 29	Next Scheduled EDR Contact: 04/26/2012
	Data Release Frequency: Quarterly

## SACRAMENTO COUNTY:

### Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 08/02/2011	Source: Sacramento County Environmental Management
Date Data Arrived at EDR: 10/12/2011	Telephone: 916-875-8406
Date Made Active in Reports: 11/08/2011	Last EDR Contact: 01/13/2012
Number of Days to Update: 27	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Quarterly

### Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 08/02/2011	Source: Sacramento County Environmental Management
Date Data Arrived at EDR: 10/14/2011	Telephone: 916-875-8406
Date Made Active in Reports: 11/08/2011	Last EDR Contact: 01/13/2012
Number of Days to Update: 25	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Quarterly

## SAN BERNARDINO COUNTY:

### Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 11/30/2011	Source: San Bernardino County Fire Department Hazardous Materials Division
Date Data Arrived at EDR: 12/01/2011	Telephone: 909-387-3041
Date Made Active in Reports: 12/16/2011	Last EDR Contact: 02/13/2012
Number of Days to Update: 15	Next Scheduled EDR Contact: 05/28/2012
	Data Release Frequency: Quarterly

## SAN DIEGO COUNTY:

### Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/09/2010	Source: Hazardous Materials Management Division
Date Data Arrived at EDR: 09/15/2010	Telephone: 619-338-2268
Date Made Active in Reports: 09/29/2010	Last EDR Contact: 03/16/2012
Number of Days to Update: 14	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2011  
Date Data Arrived at EDR: 11/04/2011  
Date Made Active in Reports: 12/13/2011  
Number of Days to Update: 39

Source: Department of Health Services  
Telephone: 619-338-2209  
Last EDR Contact: 01/30/2012  
Next Scheduled EDR Contact: 05/14/2012  
Data Release Frequency: Varies

## Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010  
Date Data Arrived at EDR: 06/15/2010  
Date Made Active in Reports: 07/09/2010  
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health  
Telephone: 619-338-2371  
Last EDR Contact: 03/12/2012  
Next Scheduled EDR Contact: 06/25/2012  
Data Release Frequency: No Update Planned

## SAN FRANCISCO COUNTY:

### Local Oversight Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008  
Date Data Arrived at EDR: 09/19/2008  
Date Made Active in Reports: 09/29/2008  
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County  
Telephone: 415-252-3920  
Last EDR Contact: 02/13/2012  
Next Scheduled EDR Contact: 05/28/2012  
Data Release Frequency: Quarterly

### Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010  
Date Data Arrived at EDR: 03/10/2011  
Date Made Active in Reports: 03/15/2011  
Number of Days to Update: 5

Source: Department of Public Health  
Telephone: 415-252-3920  
Last EDR Contact: 02/13/2012  
Next Scheduled EDR Contact: 05/28/2012  
Data Release Frequency: Quarterly

## SAN JOAQUIN COUNTY:

### San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 01/18/2012  
Date Data Arrived at EDR: 01/18/2012  
Date Made Active in Reports: 02/22/2012  
Number of Days to Update: 35

Source: Environmental Health Department  
Telephone: N/A  
Last EDR Contact: 01/09/2012  
Next Scheduled EDR Contact: 04/09/2012  
Data Release Frequency: Semi-Annually

## SAN MATEO COUNTY:

### Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 01/17/2012  
Date Data Arrived at EDR: 01/17/2012  
Date Made Active in Reports: 02/21/2012  
Number of Days to Update: 35

Source: San Mateo County Environmental Health Services Division  
Telephone: 650-363-1921  
Last EDR Contact: 03/19/2012  
Next Scheduled EDR Contact: 07/02/2012  
Data Release Frequency: Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 12/15/2011  
Date Data Arrived at EDR: 12/15/2011  
Date Made Active in Reports: 01/19/2012  
Number of Days to Update: 35

Source: San Mateo County Environmental Health Services Division  
Telephone: 650-363-1921  
Last EDR Contact: 03/19/2012  
Next Scheduled EDR Contact: 07/02/2012  
Data Release Frequency: Semi-Annually

## SANTA CLARA COUNTY:

### HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005  
Date Data Arrived at EDR: 03/30/2005  
Date Made Active in Reports: 04/21/2005  
Number of Days to Update: 22

Source: Santa Clara Valley Water District  
Telephone: 408-265-2600  
Last EDR Contact: 03/23/2009  
Next Scheduled EDR Contact: 06/22/2009  
Data Release Frequency: No Update Planned

### LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 12/05/2011  
Date Data Arrived at EDR: 12/09/2011  
Date Made Active in Reports: 01/19/2012  
Number of Days to Update: 41

Source: Department of Environmental Health  
Telephone: 408-918-3417  
Last EDR Contact: 03/05/2012  
Next Scheduled EDR Contact: 06/18/2012  
Data Release Frequency: Annually

### Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 02/16/2012  
Date Data Arrived at EDR: 02/17/2012  
Date Made Active in Reports: 02/21/2012  
Number of Days to Update: 4

Source: City of San Jose Fire Department  
Telephone: 408-535-7694  
Last EDR Contact: 02/13/2012  
Next Scheduled EDR Contact: 05/28/2012  
Data Release Frequency: Annually

## SOLANO COUNTY:

### Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 12/19/2011  
Date Data Arrived at EDR: 01/06/2012  
Date Made Active in Reports: 01/27/2012  
Number of Days to Update: 21

Source: Solano County Department of Environmental Management  
Telephone: 707-784-6770  
Last EDR Contact: 03/19/2012  
Next Scheduled EDR Contact: 07/02/2012  
Data Release Frequency: Quarterly

### Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 12/19/2011  
Date Data Arrived at EDR: 01/17/2012  
Date Made Active in Reports: 02/24/2012  
Number of Days to Update: 38

Source: Solano County Department of Environmental Management  
Telephone: 707-784-6770  
Last EDR Contact: 03/19/2012  
Next Scheduled EDR Contact: 07/02/2012  
Data Release Frequency: Quarterly

## SONOMA COUNTY:

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/05/2011	Source: Department of Health Services
Date Data Arrived at EDR: 04/06/2011	Telephone: 707-565-6565
Date Made Active in Reports: 05/12/2011	Last EDR Contact: 12/27/2011
Number of Days to Update: 36	Next Scheduled EDR Contact: 04/16/2012
	Data Release Frequency: Quarterly

## SUTTER COUNTY:

### Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 12/12/2011	Source: Sutter County Department of Agriculture
Date Data Arrived at EDR: 12/13/2011	Telephone: 530-822-7500
Date Made Active in Reports: 01/17/2012	Last EDR Contact: 03/12/2012
Number of Days to Update: 35	Next Scheduled EDR Contact: 06/25/2012
	Data Release Frequency: Semi-Annually

## VENTURA COUNTY:

### Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 10/27/2011	Source: Ventura County Environmental Health Division
Date Data Arrived at EDR: 11/23/2011	Telephone: 805-654-2813
Date Made Active in Reports: 12/13/2011	Last EDR Contact: 02/20/2012
Number of Days to Update: 20	Next Scheduled EDR Contact: 06/04/2012
	Data Release Frequency: Quarterly

### Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011	Source: Environmental Health Division
Date Data Arrived at EDR: 12/01/2011	Telephone: 805-654-2813
Date Made Active in Reports: 01/19/2012	Last EDR Contact: 01/09/2012
Number of Days to Update: 49	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Annually

### Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008	Source: Environmental Health Division
Date Data Arrived at EDR: 06/24/2008	Telephone: 805-654-2813
Date Made Active in Reports: 07/31/2008	Last EDR Contact: 02/20/2012
Number of Days to Update: 37	Next Scheduled EDR Contact: 06/04/2012
	Data Release Frequency: Quarterly

### Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 12/27/2011	Source: Ventura County Resource Management Agency
Date Data Arrived at EDR: 02/03/2012	Telephone: 805-654-2813
Date Made Active in Reports: 02/21/2012	Last EDR Contact: 01/30/2012
Number of Days to Update: 18	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 12/01/2011	Source: Environmental Health Division
Date Data Arrived at EDR: 12/19/2011	Telephone: 805-654-2813
Date Made Active in Reports: 01/17/2012	Last EDR Contact: 12/19/2011
Number of Days to Update: 29	Next Scheduled EDR Contact: 04/02/2012
	Data Release Frequency: Quarterly

## YOLO COUNTY:

### Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 12/28/2011	Source: Yolo County Department of Health
Date Data Arrived at EDR: 01/06/2012	Telephone: 530-666-8646
Date Made Active in Reports: 01/17/2012	Last EDR Contact: 12/21/2011
Number of Days to Update: 11	Next Scheduled EDR Contact: 04/09/2012
	Data Release Frequency: Annually

## **OTHER DATABASE(S)**

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

### CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 02/20/2012	Source: Department of Environmental Protection
Date Data Arrived at EDR: 02/20/2012	Telephone: 860-424-3375
Date Made Active in Reports: 03/15/2012	Last EDR Contact: 02/20/2012
Number of Days to Update: 24	Next Scheduled EDR Contact: 06/04/2012
	Data Release Frequency: Annually

### NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2010	Source: Department of Environmental Protection
Date Data Arrived at EDR: 07/20/2011	Telephone: N/A
Date Made Active in Reports: 08/11/2011	Last EDR Contact: 01/20/2012
Number of Days to Update: 22	Next Scheduled EDR Contact: 04/30/2012
	Data Release Frequency: Annually

### NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/10/2012	Source: Department of Environmental Conservation
Date Data Arrived at EDR: 02/09/2012	Telephone: 518-402-8651
Date Made Active in Reports: 03/09/2012	Last EDR Contact: 02/09/2012
Number of Days to Update: 29	Next Scheduled EDR Contact: 05/21/2012
	Data Release Frequency: Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2009  
Date Data Arrived at EDR: 01/26/2012  
Date Made Active in Reports: 03/06/2012  
Number of Days to Update: 40

Source: Department of Environmental Protection  
Telephone: 717-783-8990  
Last EDR Contact: 01/23/2012  
Next Scheduled EDR Contact: 05/07/2012  
Data Release Frequency: Annually

## RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2010  
Date Data Arrived at EDR: 06/24/2011  
Date Made Active in Reports: 06/30/2011  
Number of Days to Update: 6

Source: Department of Environmental Management  
Telephone: 401-222-2797  
Last EDR Contact: 02/27/2012  
Next Scheduled EDR Contact: 06/11/2012  
Data Release Frequency: Annually

## WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2010  
Date Data Arrived at EDR: 08/19/2011  
Date Made Active in Reports: 09/15/2011  
Number of Days to Update: 27

Source: Department of Natural Resources  
Telephone: N/A  
Last EDR Contact: 03/19/2012  
Next Scheduled EDR Contact: 07/02/2012  
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

## Electric Power Transmission Line Data

Source: Rextag Strategies Corp.  
Telephone: (281) 769-2247

U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

## AHA Hospitals:

Source: American Hospital Association, Inc.  
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

## Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services  
Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

## Nursing Homes

Source: National Institutes of Health  
Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

## Public Schools

Source: National Center for Education Statistics  
Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

## Private Schools

Source: National Center for Education Statistics  
Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Daycare Centers: Licensed Facilities  
Source: Department of Social Services  
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

### **STREET AND ADDRESS INFORMATION**

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## **GEOCHECK<sup>®</sup> - PHYSICAL SETTING SOURCE ADDENDUM**

### **TARGET PROPERTY ADDRESS**

CCWD DENNISTON / SAN VICENTE  
1862 ETHELDORE STREET  
HALF MOON BAY, CA 94019

### **TARGET PROPERTY COORDINATES**

Latitude (North):	37.5225 - 37° 31' 21.00"
Longitude (West):	122.4944 - 122° 29' 39.84"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	544677.9
UTM Y (Meters):	4152753.0
Elevation:	210 ft. above sea level

### **USGS TOPOGRAPHIC MAP**

Target Property Map:	37122-E4 MONTARA MOUNTAIN, CA
Most Recent Revision:	1999

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.



# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

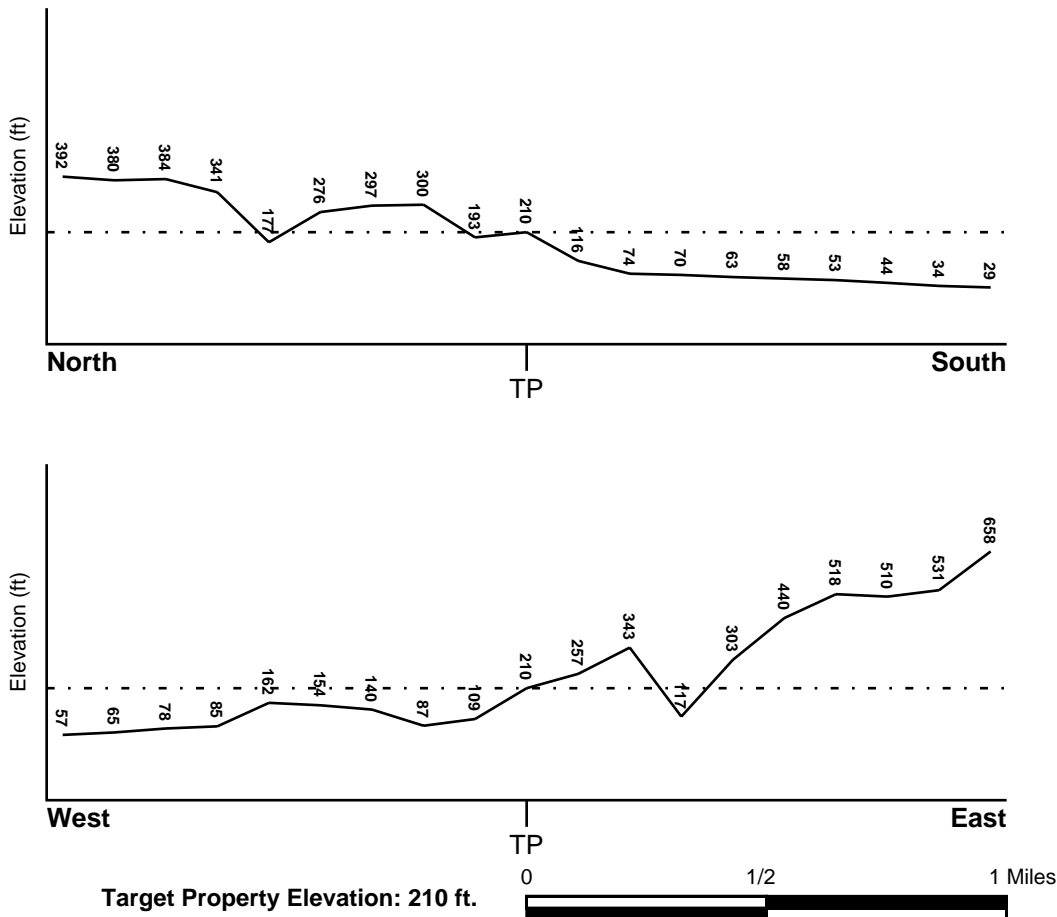
## TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

## TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SSW

## SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

## FEMA FLOOD ZONE

Target Property County  
SAN MATEO, CA

FEMA Flood  
Electronic Data  
YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 0603110113B - FEMA Q3 Flood data

Additional Panels in search area: 0603110111B - FEMA Q3 Flood data  
0603110092B - FEMA Q3 Flood data  
0603110094B - FEMA Q3 Flood data

## NATIONAL WETLAND INVENTORY

NWI Quad at Target Property  
MONTARA MOUNTAIN

NWI Electronic  
Data Coverage  
YES - refer to the Overview Map and Detail Map

## HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

### *Site-Specific Hydrogeological Data\*:*

Search Radius: 1.25 miles  
Status: Not found

## AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

### GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

#### **ROCK STRATIGRAPHIC UNIT**

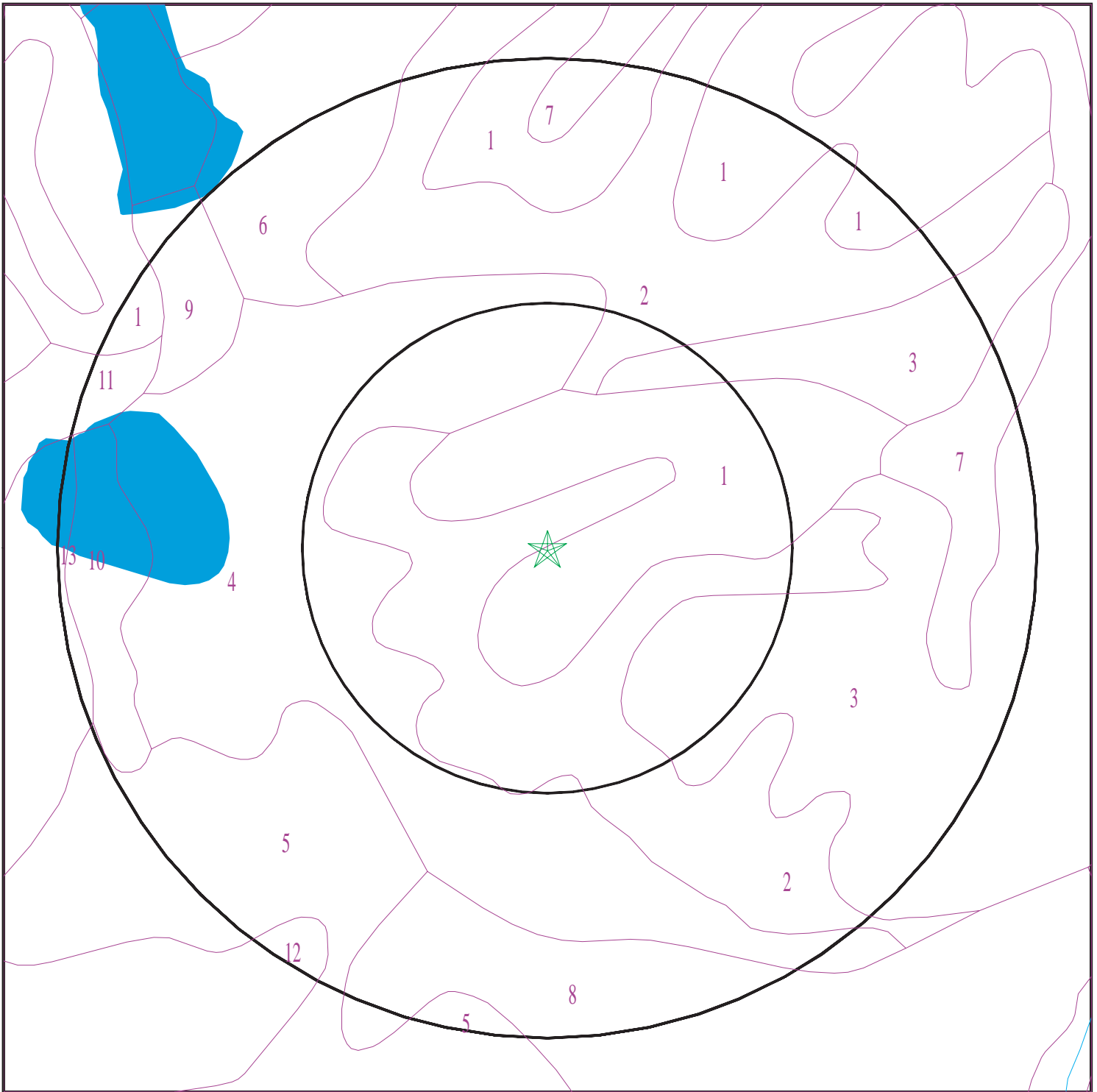
Era: Mesozoic  
System: Cretaceous  
Series: Cretaceous granitic rocks  
Code: Kg *(decoded above as Era, System & Series)*

#### **GEOLOGIC AGE IDENTIFICATION**

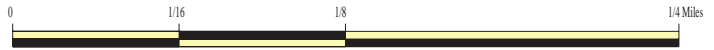
Category: Plutonic and Intrusive Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

# SSURGO SOIL MAP - 3280408.2s



- ★ Target Property
- ∩ SSURGO Soil
- ∩ Water



SITE NAME: CCWD Denniston / San Vicente  
ADDRESS: 1862 Etheldore Street  
Half Moon Bay CA 94019  
LAT/LONG: 37.5225 / 122.4944

CLIENT: Analytical Environmental Serv.  
CONTACT: David Sawyer  
INQUIRY #: 3280408.2s  
DATE: March 19, 2012 2:06 pm

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

### Soil Map ID: 1

Soil Component Name: Miramar

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	22 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:
2	22 inches	37 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:
3	37 inches	40 inches	weathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### Soil Map ID: 2

Soil Component Name: Tierra

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	16 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1
2	16 inches	37 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1
3	37 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1

### Soil Map ID: 3

Soil Component Name: Miramar

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	22 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:
2	22 inches	37 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:
3	37 inches	40 inches	weathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:

---

### Soil Map ID: 4

Soil Component Name: Tierra

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	16 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1
2	16 inches	37 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1
3	37 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1

**Soil Map ID: 5**

Soil Component Name: Denison

Soil Surface Texture: loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches



## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
2	14 inches	44 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
3	44 inches	59 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
4	59 inches	70 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6

### Soil Map ID: 6

Soil Component Name: Tierra

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	16 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1
2	16 inches	37 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1
3	37 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1

**Soil Map ID: 7**

Soil Component Name: Miramar

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	22 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:
2	22 inches	37 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:
3	37 inches	40 inches	weathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:

### Soil Map ID: 8

Soil Component Name: Farallone

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	20 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 6.1
2	20 inches	48 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 6.1
3	48 inches	59 inches	stratified coarse sandy loam to sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 6.1

### Soil Map ID: 9

Soil Component Name: Watsonville

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1
2	14 inches	40 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1
3	40 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.1

**Soil Map ID: 10**

Soil Component Name: Denison

Soil Surface Texture: loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
2	14 inches	44 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
3	44 inches	59 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
4	59 inches	70 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6

### Soil Map ID: 11

Soil Component Name: Elkhorn

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	20 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 6.5 Min: 5.6
2	20 inches	59 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 6.5 Min: 5.6

**Soil Map ID: 12**

Soil Component Name: Denison

Soil Surface Texture: clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	9 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	9 inches	44 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
3	44 inches	61 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
4	61 inches	70 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6

### Soil Map ID: 13

Soil Component Name: Denison

Soil Surface Texture: loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches



## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
2	14 inches	44 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
3	44 inches	59 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6
4	59 inches	70 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.8 Min: 6.6

### LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

### WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

### FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
B7	USGS3236048	1/2 - 1 Mile South
C10	USGS3236047	1/2 - 1 Mile South
E16	USGS3236046	1/2 - 1 Mile SSW

### FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

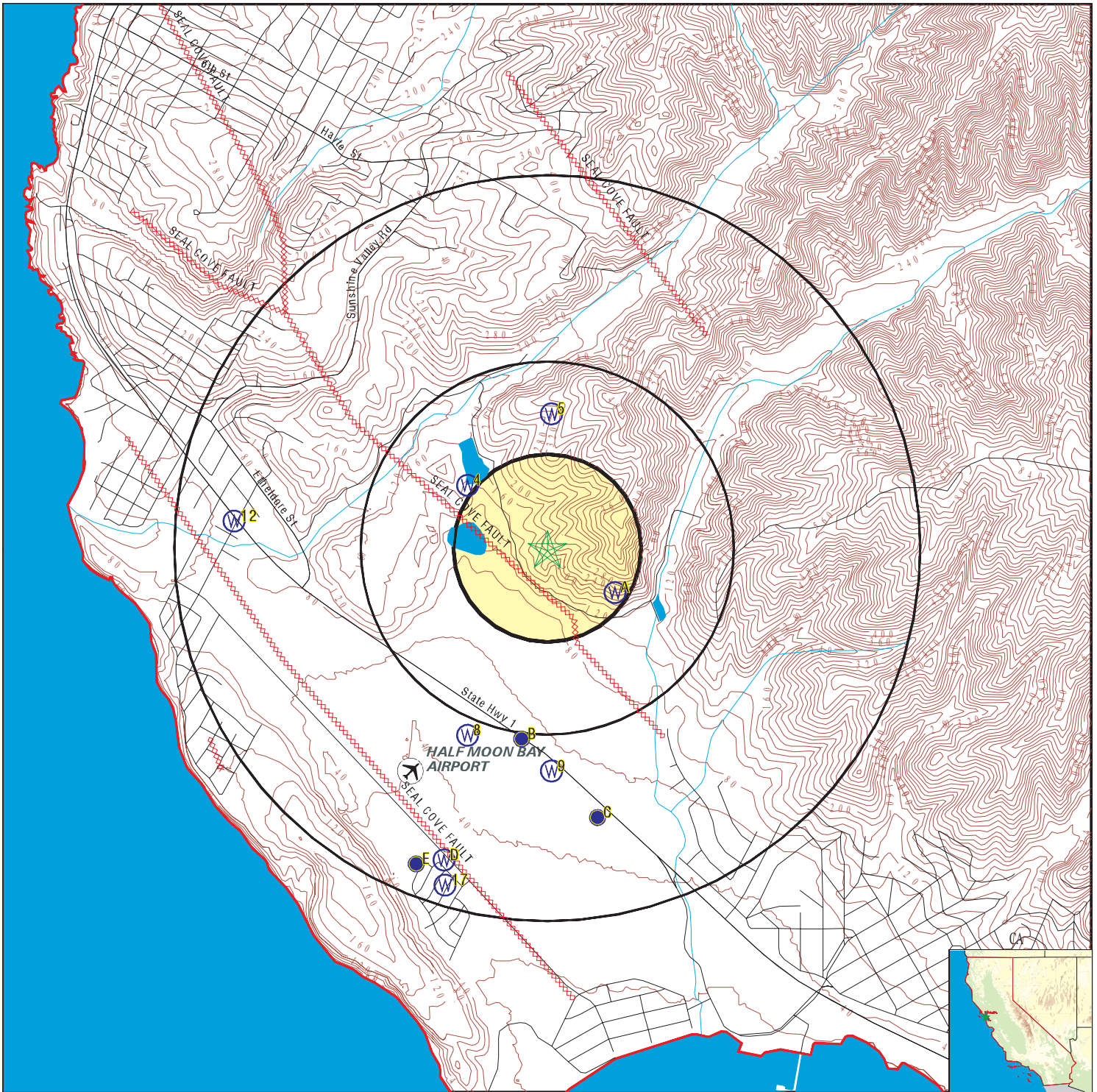
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

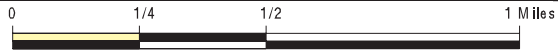
### STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	22415	1/8 - 1/4 Mile SE
A2	22417	1/8 - 1/4 Mile SE
A3	22416	1/8 - 1/4 Mile ESE
4	22420	1/4 - 1/2 Mile NW
5	6000	1/4 - 1/2 Mile North
B6	5993	1/2 - 1 Mile South
8	5996	1/2 - 1 Mile SSW
9	5997	1/2 - 1 Mile South
C11	5994	1/2 - 1 Mile South
12	6006	1/2 - 1 Mile West
D13	19632	1/2 - 1 Mile SSW
D14	CADW40000037221	1/2 - 1 Mile SSW
E15	19634	1/2 - 1 Mile SSW
17	19633	1/2 - 1 Mile SSW

# PHYSICAL SETTING SOURCE MAP - 3280408.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons



- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells



SITE NAME: CCWD Denniston / San Vicente  
 ADDRESS: 1862 Etheldore Street  
 Half Moon Bay CA 94019  
 LAT/LONG: 37.5225 / 122.4944

CLIENT: Analytical Environmental Serv.  
 CONTACT: David Sawyer  
 INQUIRY #: 3280408.2s  
 DATE: March 19, 2012 2:06 pm

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**A1**  
**SE**  
**1/8 - 1/4 Mile**  
**Lower**

**CA WELLS      22415**

**Water System Information:**

Prime Station Code:	D41/011-DENBLND	User ID:	ENG
FRDS Number:	4110011009	County:	San Mateo
District Number:	04	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	373115.0 1222925.0	Precision:	0.5 Mile (30 Seconds)
Source Name:	DENNISTON WELL FIELD BLEND 1,2,4,5 & 9		
System Number:	4110011		
System Name:	Coastside County Water Dist		
Organization That Operates System:	766 Main Street Hlaf Moon Bay, CA 94019		
Pop Served:	12000	Connections:	4351
Area Served:	HALF MOON BAY		

**A2**  
**SE**  
**1/8 - 1/4 Mile**  
**Lower**

**CA WELLS      22417**

**Water System Information:**

Prime Station Code:	D41/011-DENRESV	User ID:	ENG
FRDS Number:	4110011001	County:	San Mateo
District Number:	04	Station Type:	STREAM/AMBNT/MUN/INTAKE
Water Type:	Surface Water	Well Status:	Active Raw
Source Lat/Long:	373115.0 1222925.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	DENNISTON RESERVOIR - RAW		
System Number:	4110011		
System Name:	Coastside County Water Dist		
Organization That Operates System:	766 Main Street Hlaf Moon Bay, CA 94019		
Pop Served:	12000	Connections:	4351
Area Served:	HALF MOON BAY		
Sample Collected:	01/26/2011	Findings:	50. UNITS
Chemical:	COLOR		
Sample Collected:	01/26/2011	Findings:	8. TON
Chemical:	ODOR THRESHOLD @ 60 C		
Sample Collected:	01/26/2011	Findings:	260. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	01/26/2011	Findings:	6.7
Chemical:	PH, LABORATORY		
Sample Collected:	01/26/2011	Findings:	72. MG/L
Chemical:	ALKALINITY (TOTAL) AS CaCO3		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	01/26/2011	Findings:	87.8 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	01/26/2011	Findings:	74.7 MG/L
Chemical:	HARDNESS (TOTAL) AS CaCO3		
Sample Collected:	01/26/2011	Findings:	21. MG/L
Chemical:	CALCIUM		
Sample Collected:	01/26/2011	Findings:	5.4 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	01/26/2011	Findings:	24. MG/L
Chemical:	SODIUM		
Sample Collected:	01/26/2011	Findings:	0.3 MG/L
Chemical:	POTASSIUM		
Sample Collected:	01/26/2011	Findings:	31. MG/L
Chemical:	CHLORIDE		
Sample Collected:	01/26/2011	Findings:	0.36 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	01/26/2011	Findings:	122. UG/L
Chemical:	MANGANESE		
Sample Collected:	01/26/2011	Findings:	116. UG/L
Chemical:	ALUMINUM		
Sample Collected:	01/26/2011	Findings:	160. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	01/26/2011	Findings:	- 0.96
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	01/26/2011	Findings:	5.8 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	01/26/2011	Findings:	1300. UG/L
Chemical:	IRON		

**A3**  
**ESE**  
**1/8 - 1/4 Mile**  
**Lower**

**CA WELLS 22416**

**Water System Information:**

Prime Station Code:	D41/011-DENNISO	User ID:	ENG
FRDS Number:	4110011010	County:	San Mateo
District Number:	04	Station Type:	RESVR/AMBNT/MUN/INTAKE
Water Type:	Surface Water	Well Status:	Active Treated
Source Lat/Long:	373115.0 1222922.5	Precision:	0.5 Mile (30 Seconds)
Source Name:	DENNISTON WTP - TREATED		
System Number:	4110011		
System Name:	Coastside County Water Dist		
Organization That Operates System:	766 Main Street		
	Half Moon Bay, CA 94019		
Pop Served:	12000	Connections:	4351
Area Served:	HALF MOON BAY		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database      EDR ID Number

**4**  
**NW**  
**1/4 - 1/2 Mile**  
**Lower**

**CA WELLS      22420**

**Water System Information:**

Prime Station Code:	D41/011-SANVRES	User ID:	ENG
FRDS Number:	4110011019	County:	San Mateo
District Number:	04	Station Type:	RESVR/AMBNT/MUN/INTAKE
Water Type:	Surface Water	Well Status:	Active Raw
Source Lat/Long:	373130.0 1222950.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	SAN VINCENTE RESERVOIR - RAW		
System Number:	4110011		
System Name:	Coastside County Water Dist		
Organization That Operates System:	766 Main Street Half Moon Bay, CA 94019		
Pop Served:	12000	Connections:	4351
Area Served:	HALF MOON BAY		

**5**  
**North**  
**1/4 - 1/2 Mile**  
**Higher**

**CA WELLS      6000**

**Water System Information:**

Prime Station Code:	05S/06W-11F03 M	User ID:	ENG
FRDS Number:	4110011006	County:	San Mateo
District Number:	04	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	373140.0 1222935.0	Precision:	0.5 Mile (30 Seconds)
Source Name:	DENNISTON WELL 06		
System Number:	4110011		
System Name:	Coastside County Water Dist		
Organization That Operates System:	766 Main Street Half Moon Bay, CA 94019		
Pop Served:	12000	Connections:	4351
Area Served:	HALF MOON BAY		

**B6**  
**South**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS      5993**

**Water System Information:**

Prime Station Code:	05S/06W-10H01 M	User ID:	ENG
FRDS Number:	4110010001	County:	San Mateo
District Number:	04	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	373055.0 1222940.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	AIRPORT WELL 03		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

System Number:	4110010		
System Name:	Citizens Utilities Comp of CA		
Organization That Operates System:	P.O. Box 15468		
	Sacramento, CA 95468		
Pop Served:	4058	Connections:	1623
Area Served:	Montara-Moss Beach		
Sample Collected:	01/04/2011	Findings:	45. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	02/02/2011	Findings:	260. UG/L
Chemical:	MANGANESE		
Sample Collected:	02/02/2011	Findings:	6.e-003 UG/L
Chemical:	1,2,3-TRICHLOROPROPANE		
Sample Collected:	03/01/2011	Findings:	50. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	04/06/2011	Findings:	49. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	05/18/2011	Findings:	200. UG/L
Chemical:	MANGANESE		
Sample Collected:	05/18/2011	Findings:	49. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	06/08/2011	Findings:	51. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	07/06/2011	Findings:	43. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	08/17/2011	Findings:	120. UG/L
Chemical:	MANGANESE		
Sample Collected:	08/17/2011	Findings:	49. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09/12/2011	Findings:	48. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	10/11/2011	Findings:	48. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	11/02/2011	Findings:	46. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	11/29/2011	Findings:	140. UG/L
Chemical:	MANGANESE		
Sample Collected:	11/29/2011	Findings:	46. MG/L
Chemical:	NITRATE (AS NO3)		

**B7  
South  
1/2 - 1 Mile  
Lower**

**FED USGS USGS3236048**

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Agency cd:	USGS	Site no:	373054122294101
Site name:	005S006W11E001M	EDR Site id:	USGS3236048
Latitude:	373054	Dec lat:	37.51494067
Longitude:	1222941	Coor meth:	M
Dec lon:	-122.49581128	Latlong datum:	NAD27
Coor accr:	S	District:	06
Dec latlong datum:	NAD83	County:	081
State:	06	Land net:	SWSWNWS11 T05S R06W M
Country:	US	Map scale:	24000
Location map:	MONTARA MOUNTAIN		
Altitude:	50.00		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	005		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	TomalesDrake Bays. California. Area = 339 sq.mi.		
Topographic:	Flat surface		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	Not Reported
Source of depth data:	Not Reported		
Project number:	479200200		
Real time data flag:	0		
Daily flow data end date:	0000-00-00	Daily flow data begin date:	0000-00-00
Daily flow data count:	0		
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0		
Water quality data begin date:	1981-09-15	Water quality data begin date:	1981-08-05
Water quality data end date:	1972-11-20	Water quality data count:	2
Ground water data begin date:	1972-11-20	Ground water data end date:	1972-12-01
Ground water data count:	2		

Ground-water levels, Number of Measurements: 2

Date	Feet below Surface	Feet to Sealevel		Date	Feet below Surface	Feet to Sealevel
1972-12-01	16.32					
1972-11-20	20.70					

Note: The site had been pumped recently.

**8**  
**SSW**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS    5996**

**Water System Information:**

Prime Station Code:	05S/06W-11E01 M	User ID:	ENG
FRDS Number:	4110010005	County:	San Mateo
District Number:	04	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Monitoring Well
Source Lat/Long:	373055.0 1222950.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	N AIRPORT WELL - MONITORING WELL		
System Number:	4110010		
System Name:	Citizens Utilities Comp of CA		
Organization That Operates System:	P.O. Box 15468 Sacramento, CA 95468		
Pop Served:	4058	Connections:	1623
Area Served:	Montara-Moss Beach		



# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**9**  
**South**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS      5997**

**Water System Information:**

Prime Station Code:	05S/06W-11E02 M	User ID:	ENG
FRDS Number:	4110010012	County:	San Mateo
District Number:	04	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	373050.0 1222935.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	S AIRPORT WELL		
System Number:	4110010		
System Name:	Citizens Utilities Comp of CA		
Organization That Operates System:	P.O. Box 15468 Sacramento, CA 95468		
Pop Served:	4058	Connections:	1623
Area Served:	Montara-Moss Beach		
Sample Collected:	02/02/2011	Findings:	2900. UG/L
Chemical:	MANGANESE		
Sample Collected:	02/02/2011	Findings:	2.8 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	02/02/2011	Findings:	1.9e-002 UG/L
Chemical:	1,2,3-TRICHLOROPROPANE		
Sample Collected:	05/18/2011	Findings:	2900. UG/L
Chemical:	MANGANESE		
Sample Collected:	05/18/2011	Findings:	1.4e-002 UG/L
Chemical:	1,2,3-TRICHLOROPROPANE		
Sample Collected:	08/17/2011	Findings:	2900. UG/L
Chemical:	MANGANESE		
Sample Collected:	08/17/2011	Findings:	0.63 UG/L
Chemical:	1,2-DICHLOROPROPANE		
Sample Collected:	08/17/2011	Findings:	1.3e-002 UG/L
Chemical:	1,2,3-TRICHLOROPROPANE		
Sample Collected:	11/29/2011	Findings:	660. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	11/29/2011	Findings:	0.36 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	11/29/2011	Findings:	3100. UG/L
Chemical:	MANGANESE		
Sample Collected:	11/29/2011	Findings:	7.7 UG/L
Chemical:	SELENIUM		
Sample Collected:	11/29/2011	Findings:	3.5 MG/L
Chemical:	NITRATE (AS NO3)		

**C10**  
**South**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS      USGS3236047**

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Agency cd:	USGS	Site no:	373045122292801
Site name:	005S006W11E003M		
Latitude:	373045	EDR Site id:	USGS3236047
Longitude:	1222928	Dec lat:	37.51244071
Dec lon:	-122.49220006	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	06
State:	06	County:	081
Country:	US	Land net:	SESES11 T05S R06W M
Location map:	HALF MOON BAY	Map scale:	24000
Altitude:	49.00		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	Not Reported		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	San Francisco Coastal South. California. Area = 256 sq.mi.		
Topographic:	Flat surface		
Site type:	Ground-water other than Spring	Date construction:	19570426
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	87.0	Hole depth:	92.0
Source of depth data:	Not Reported		
Project number:	9479200205		
Real time data flag:	0		
Daily flow data end date:	0000-00-00	Daily flow data begin date:	0000-00-00
Daily flow data count:	0		
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0		
Water quality data begin date:	0000-00-00		
Water quality data end date:	0000-00-00		
Water quality data count:	0		
Ground water data begin date:	1979-04-18		
Ground water data end date:	1994-04-14		
Ground water data count:	33		

Ground-water levels, Number of Measurements: 33

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1994-04-14	4.84		1993-10-20	8.81	
1993-04-26	2.44		1992-10-14	9.61	
1992-04-15	3.10		1991-11-20	39.34	
1991-10-08	38.19		1991-04-17	42.19	
1990-10-10	44.43		1990-04-27	26.78	
1989-10-25	44.09				
Note: A nearby site that taps the same aquifer was being pumped.					
1989-10-12	45.17				
1989-04-13	24.50				
Note: A nearby site that taps the same aquifer was being pumped.					
1989-04-11	24.57		1988-10-20	24.66	
1988-03-25	22.75		1987-10-06	24.48	
1986-10-30	24.52		1986-05-07	20.85	
1985-10-13	25.04		1985-03-30	16.75	
1984-10-23	25.04		1984-04-14	15.12	
1983-10-13	19.54		1983-04-12	15.12	
1982-10-13	19.54				
1982-09-14	22.94				
Note: A nearby site that taps the same aquifer was being pumped.					
1982-04-15	20.14		1981-09-15	29.54	
1981-04-20	18.85				
1980-04-16	17.34				
Note: A nearby site that taps the same aquifer was being pumped.					

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1979-10-02	25.69		1979-04-18	17.46	

**C11**  
**South**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS 5994**

**Water System Information:**

Prime Station Code:	05S/06W-10K01 M	User ID:	ENG
FRDS Number:	4110011008	County:	San Mateo
District Number:	04	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	373042.0 1222926.0	Precision:	100 Feet (one Second)
Source Name:	DENNISTON WELL 09		
System Number:	4110011		
System Name:	Coastside County Water Dist		
Organization That Operates System:	766 Main Street Half Moon Bay, CA 94019		
Pop Served:	12000	Connections:	4351
Area Served:	HALF MOON BAY		

**12**  
**West**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS 6006**

**Water System Information:**

Prime Station Code:	05S/06W-34P01 M	User ID:	ENG
FRDS Number:	4110010006	County:	San Mateo
District Number:	04	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Inactive Raw
Source Lat/Long:	373125.0 1223031.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	OAK STREET WELL - INACTIVE		
System Number:	4110010		
System Name:	Citizens Utilities Comp of CA		
Organization That Operates System:	P.O. Box 15468 Sacramento, CA 95468		
Pop Served:	4058	Connections:	1623
Area Served:	Montara-Moss Beach		

**D13**  
**SSW**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS 19632**

**Water System Information:**

Prime Station Code:	4110028-002	User ID:	ENG
FRDS Number:	4110028002	County:	San Mateo
District Number:	04	Station Type:	WELL/AMBNT
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	373038.5 1222953.1	Precision:	100 Feet (one Second)
Source Name:	CORONA WELL		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

System Number: 4110028  
 System Name: El Granada MHP  
 Organization That Operates System:  
     164 Culebra  
     Moss Beach, CA 94038  
 Pop Served: 900  
 Area Served: Not Reported  
 Connections: 228

**D14**  
**SSW**  
**1/2 - 1 Mile**  
**Lower**

CA WELLS      CADW40000037221

Longitude: -122.4986  
 Latitude: 37.5103  
 Stwellno: 05S06W10J001M  
 Districtco: 7  
 Welluseco: IS  
 Countyco: 41  
 Gwcode: 202200  
 Site id: CADW40000037221

**E15**  
**SSW**  
**1/2 - 1 Mile**  
**Lower**

CA WELLS      19634

**Water System Information:**

Prime Station Code: 4110028-004	User ID: ENG
FRDS Number: 4110028004	County: San Mateo
District Number: 04	Station Type: WELL/AMBNT
Water Type: Well/Groundwater	Well Status: Active Raw
Source Lat/Long: 373037.6 1222959.8	Precision: 100 Feet (one Second)
Source Name: CULEBRA WELL	
System Number: 4110028	
System Name: El Granada MHP	
Organization That Operates System: 164 Culebra Moss Beach, CA 94038	
Pop Served: 900	Connections: 228
Area Served: Not Reported	
Sample Collected: 01/20/2011	Findings: 0.91 MG/L
Chemical: FLUORIDE (F) (NATURAL-SOURCE)	
Sample Collected: 04/21/2011	Findings: 0.99 MG/L
Chemical: FLUORIDE (F) (NATURAL-SOURCE)	
Sample Collected: 04/21/2011	Findings: 150. UG/L
Chemical: BORON	
Sample Collected: 07/21/2011	Findings: 0.79 MG/L
Chemical: FLUORIDE (F) (NATURAL-SOURCE)	
Sample Collected: 10/20/2011	Findings: 0.83 MG/L
Chemical: FLUORIDE (F) (NATURAL-SOURCE)	

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected: 10/20/2011 Findings: 160. UG/L  
 Chemical: BORON

**E16**  
**SSW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS USGS3236046**

Agency cd:	USGS	Site no:	373037122295901
Site name:	005S006W10J002M		
Latitude:	373037	EDR Site id:	USGS3236046
Longitude:	1222959	Dec lat:	37.51021873
Dec lon:	-122.50081165	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	06
State:	06	County:	081
Country:	US	Land net:	Not Reported
Location map:	MONTARA MOUNTAIN	Map scale:	24000
Altitude:	30		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	12		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	San Francisco Coastal South. California. Area = 256 sq.mi.		
Topographic:	Valley flat		
Site type:	Ground-water other than Spring	Date construction:	19840427
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	125	Hole depth:	135
Source of depth data:	driller		
Project number:	470649300		
Real time data flag:	Not Reported		
Daily flow data end date:	Not Reported		
Peak flow data begin date:	Not Reported		
Peak flow data count:	Not Reported		
Water quality data end date:	Not Reported		
Ground water data begin date:	Not Reported		
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

**17**  
**SSW**  
**1/2 - 1 Mile**  
**Lower**

**CA WELLS 19633**

**Water System Information:**

Prime Station Code:	4110028-003	User ID:	ENG
FRDS Number:	4110028003	County:	San Mateo
District Number:	04	Station Type:	WELL/AMBNT
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	373034.4 1222954.6	Precision:	100 Feet (one Second)
Source Name:	RETIRO WELL		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

System Number:	4110028		
System Name:	El Granada MHP		
Organization That Operates System:	164 Culebra Moss Beach, CA 94038		
Pop Served:	900	Connections:	228
Area Served:	Not Reported		
Sample Collected:	01/20/2011	Findings:	1.2 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	01/20/2011	Findings:	0.52 UG/L
Chemical:	CIS-1,2-DICHLOROETHYLENE		
Sample Collected:	04/21/2011	Findings:	0.69 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	04/21/2011	Findings:	220. UG/L
Chemical:	BORON		
Sample Collected:	07/21/2011	Findings:	1.1 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	10/20/2011	Findings:	1.1 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	10/20/2011	Findings:	230. UG/L
Chemical:	BORON		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

## AREA RADON INFORMATION

State Database: CA Radon

### Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
94019	38	0

Federal EPA Radon Zone for SAN MATEO County: 2

- Note: Zone 1 indoor average level > 4 pCi/L.
- : Zone 2 indoor average level  $\geq$  2 pCi/L and  $\leq$  4 pCi/L.
- : Zone 3 indoor average level < 2 pCi/L.

---

Federal Area Radon Information for Zip Code: 94019

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.300 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## TOPOGRAPHIC INFORMATION

### USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

### Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

## HYDROLOGIC INFORMATION

**Flood Zone Data:** This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

**NWI:** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

## HYDROGEOLOGIC INFORMATION

### AQUIFLOW<sup>R</sup> Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

## GEOLOGIC INFORMATION

### Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

### STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

### SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.



# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## LOCAL / REGIONAL WATER AGENCY RECORDS

### FEDERAL WATER WELLS

#### PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

#### PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

#### USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

### STATE RECORDS

#### Water Well Database

Source: Department of Water Resources

Telephone: 916-651-9648

#### California Drinking Water Quality Database

Source: Department of Health Services

Telephone: 916-324-2319

The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

## OTHER STATE DATABASE INFORMATION

#### California Oil and Gas Well Locations

Source: Department of Conservation

Telephone: 916-323-1779

Oil and Gas well locations in the state.

### RADON

#### State Database: CA Radon

Source: Department of Health Services

Telephone: 916-324-2208

Radon Database for California

#### Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

#### EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

## PHYSICAL SETTING SOURCE RECORDS SEARCHED

### OTHER

Airport Landing Facilities: Private and public use landing facilities  
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater  
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

### STREET AND ADDRESS INFORMATION

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**CCWD Denniston / San Vicente**

1862 Etheldore Street

Half Moon Bay, CA 94019

Inquiry Number: 3280408.5

March 22, 2012

## The EDR Aerial Photo Decade Package



440 Wheelers Farms Road  
Milford, CT 06461  
800.352.0050  
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**Date EDR Searched Historical Sources:**

Aerial Photography March 22, 2012

**Target Property:**

1862 Etheldore Street

Half Moon Bay, CA 94019

<u><i>Year</i></u>	<u><i>Scale</i></u>	<u><i>Details</i></u>	<u><i>Source</i></u>
1946	Aerial Photograph. Scale: 1"=655'	Flight Year: 1946	Jack Ammann
1956	Aerial Photograph. Scale: 1"=655'	Flight Year: 1956	Clyde Sunderland
1965	Aerial Photograph. Scale: 1"=333'	Flight Year: 1965	Cartwright
1975	Aerial Photograph. Scale: 1"=750'	Flight Year: 1975	NASA
1982	Aerial Photograph. Scale: 1"=690'	Flight Year: 1982	USGS
1993	Aerial Photograph. Scale: 1"=500'	/Composite DOQQ - acquisition dates: 1993	EDR
1998	Aerial Photograph. Scale: 1"=666'	Flight Year: 1998	USGS
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	EDR
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	EDR



INQUIRY #: 3280408.5

YEAR: 1946

| = 655'







**INQUIRY #:** 3280408.5

**YEAR:** 1956

| = 655'







**INQUIRY #:** 3280408.5

**YEAR:** 1965

| = 333'







**INQUIRY #:** 3280408.5

**YEAR:** 1975

| = 750'







**INQUIRY #:** 3280408.5

**YEAR:** 1982

| = 690'







**INQUIRY #:** 3280408.5

**YEAR:** 2006

 = 500'





**CCWD Denniston / San Vicente**

1862 Etheldore Street

Half Moon Bay, CA 94019

Inquiry Number: 3280408.4

March 19, 2012

# EDR Historical Topographic Map Report

# EDR Historical Topographic Map Report

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# Historical Topographic Map



	<b>TARGET QUAD</b>	<b>SITE NAME:</b> CCWD Denniston / San Vicente	<b>CLIENT:</b> Analytical Environmental Serv.	
	<b>NAME:</b> SAN MATEO	<b>ADDRESS:</b> 1862 Etheldore Street	<b>CONTACT:</b> David Sawyer	
	<b>MAP YEAR:</b> 1899	<b>LAT/LONG:</b> 37.5225 / -122.4944	<b>INQUIRY#:</b> 3280408.4	<b>RESEARCH DATE:</b> 03/19/2012
	<b>SERIES:</b> 15			
	<b>SCALE:</b> 1:62500			



# Historical Topographic Map



	<b>TARGET QUAD</b>	<b>SITE NAME:</b> CCWD Denniston / San Vicente	<b>CLIENT:</b> Analytical Environmental Serv.	
	<b>NAME:</b> SAN MATEO	<b>ADDRESS:</b> 1862 Etheldore Street	<b>CONTACT:</b> David Sawyer	
	<b>MAP YEAR:</b> 1915	<b>LAT/LONG:</b> 37.5225 / -122.4944	<b>INQUIRY#:</b> 3280408.4	<b>RESEARCH DATE:</b> 03/19/2012
	<b>SERIES:</b> 15			
	<b>SCALE:</b> 1:62500			



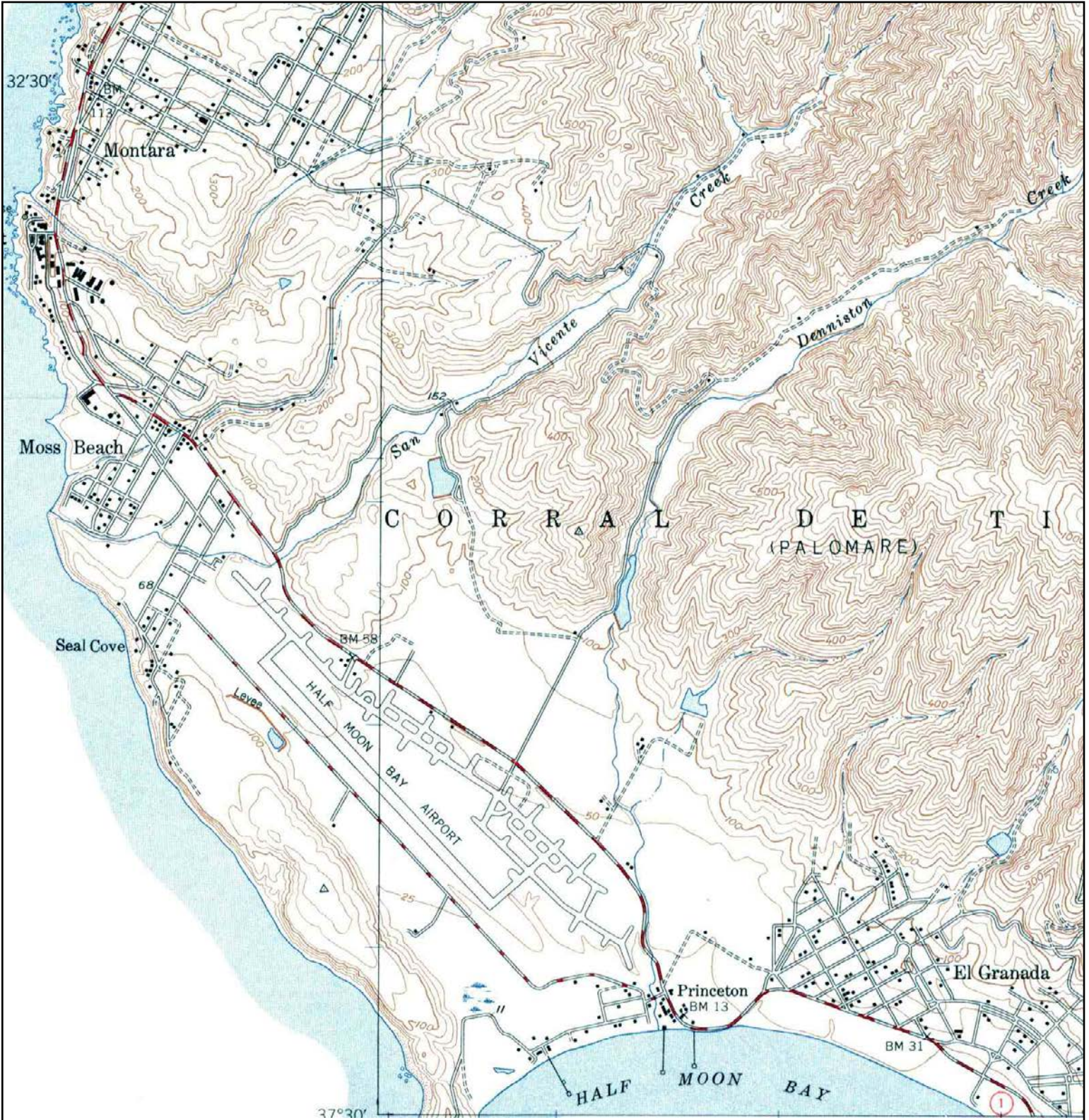
# Historical Topographic Map




	<b>TARGET QUAD</b>	<b>SITE NAME:</b> CCWD Denniston / San Vicente	<b>CLIENT:</b> Analytical Environmental Serv.
	<b>NAME:</b> SAN MATEO	<b>ADDRESS:</b> 1862 Etheldore Street	<b>CONTACT:</b> David Sawyer
	<b>MAP YEAR:</b> 1947	<b>LAT/LONG:</b> 37.5225 / -122.4944	<b>INQUIRY#:</b> 3280408.4
	<b>SERIES:</b> 15		<b>RESEARCH DATE:</b> 03/19/2012
	<b>SCALE:</b> 1:50000		



# Historical Topographic Map



 <p>N</p>	<b>TARGET QUAD</b>	<b>SITE NAME:</b> CCWD Denniston / San Vicente	<b>CLIENT:</b> Analytical Environmental Serv.
	<b>NAME:</b> MONTARA MOUNTAIN	<b>ADDRESS:</b> 1862 Etheldore Street	<b>CONTACT:</b> David Sawyer
	<b>MAP YEAR:</b> 1949	<b>LAT/LONG:</b> 37.5225 / -122.4944	<b>INQUIRY#:</b> 3280408.4
	<b>SERIES:</b> 7.5		<b>RESEARCH DATE:</b> 03/19/2012
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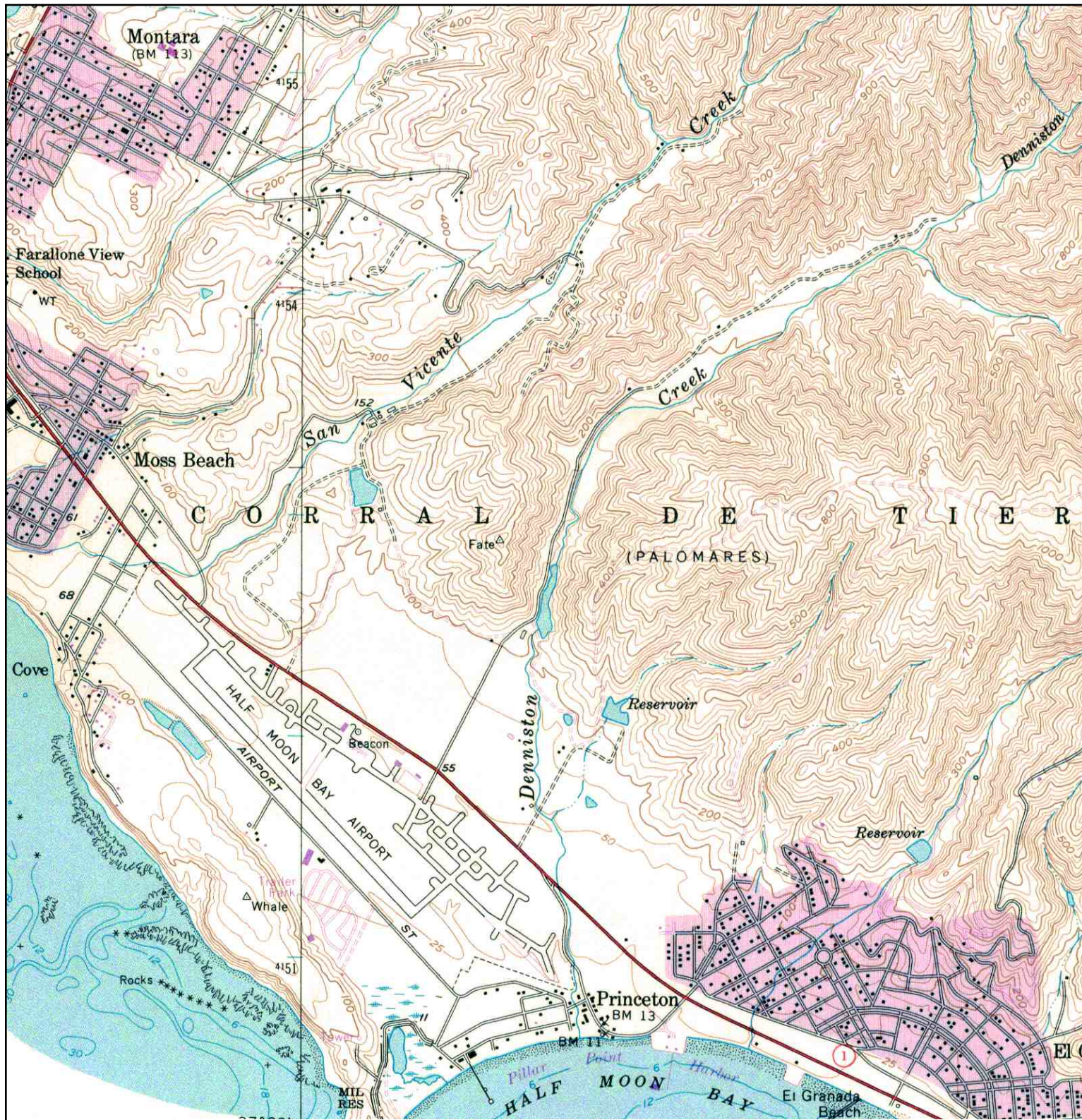
# Historical Topographic Map



<p>N ↑</p>	<b>TARGET QUAD</b>	<b>SITE NAME:</b> CCWD Denniston / San Vicente	<b>CLIENT:</b> Analytical Environmental Serv.
	<b>NAME:</b> MONTARA MOUNTAIN	<b>ADDRESS:</b> 1862 Etheldore Street	<b>CONTACT:</b> David Sawyer
	<b>MAP YEAR:</b> 1956	<b>LAT/LONG:</b> 37.5225 / -122.4944	<b>INQUIRY#:</b> 3280408.4
	<b>SERIES:</b> 7.5		<b>RESEARCH DATE:</b> 03/19/2012
	<b>SCALE:</b> 1:24000		



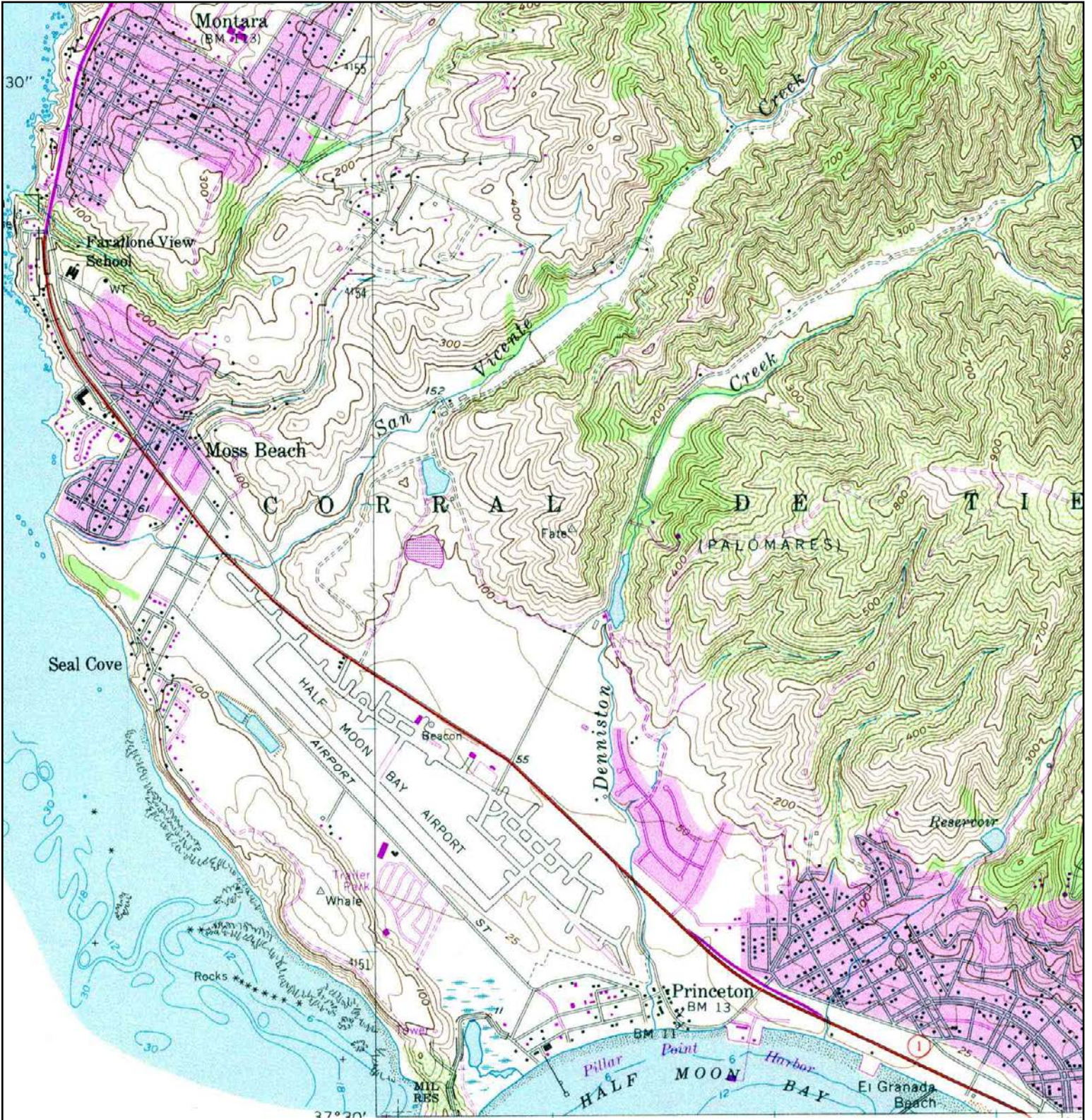
# Historical Topographic Map



<p>N</p>	<b>TARGET QUAD</b>	<b>SITE NAME:</b> CCWD Denniston / San Vicente	<b>CLIENT:</b> Analytical Environmental Serv.
	NAME: MONTARA MOUNTAIN	ADDRESS: 1862 Etheldore Street	<b>CONTACT:</b> David Sawyer
	MAP YEAR: 1968	ADDRESS: Half Moon Bay, CA 94019	<b>INQUIRY#:</b> 3280408.4
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	SERIES: 7.5		
	SCALE: 1:24000		



# Historical Topographic Map



<p>N ↑</p>	<b>TARGET QUAD</b>	<b>SITE NAME:</b> CCWD Denniston / San Vicente	<b>CLIENT:</b> Analytical Environmental Serv.
	NAME: MONTARA MOUNTAIN	ADDRESS: 1862 Etheldore Street	
	MAP YEAR: 1980	Half Moon Bay, CA 94019	<b>CONTACT:</b> David Sawyer
	PHOTOREVISED FROM :1956	LAT/LONG: 37.5225 / -122.4944	<b>INQUIRY#:</b> 3280408.4
	SERIES: 7.5		<b>RESEARCH DATE:</b> 03/19/2012
	SCALE: 1:24000		



# Historical Topographic Map



<p>N ↑</p>	<p><b>TARGET QUAD</b>                  NAME: MONTARA MOUNTAIN                  MAP YEAR: 1993</p>	<p>SITE NAME: CCWD Denniston / San Vicente                  ADDRESS: 1862 Etheldore Street                  Half Moon Bay, CA 94019                  LAT/LONG: 37.5225 / -122.4944</p>	<p>CLIENT: Analytical Environmental Serv.                  CONTACT: David Sawyer                  INQUIRY#: 3280408.4                  RESEARCH DATE: 03/19/2012</p>
	<p>SERIES: 7.5                  SCALE: 1:24000</p>		



# Historical Topographic Map



<p>N</p>	<b>TARGET QUAD</b>	<b>SITE NAME:</b> CCWD Denniston / San Vicente	<b>CLIENT:</b> Analytical Environmental Serv.
	<b>NAME:</b> MONTARA MOUNTAIN	<b>ADDRESS:</b> 1862 Etheldore Street	<b>CONTACT:</b> David Sawyer
	<b>MAP YEAR:</b> 1997	<b>LAT/LONG:</b> 37.5225 / -122.4944	<b>INQUIRY#:</b> 3280408.4
	<b>SERIES:</b> 7.5		<b>RESEARCH DATE:</b> 03/19/2012
	<b>SCALE:</b> 1:24000		





**CCWD Denniston / San Vicente**

1862 Etheldore Street

Half Moon Bay, CA 94019

Inquiry Number: 3280408.3

March 19, 2012



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# Certified Sanborn® Map Report

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**Site Name:**

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**Client Name:**

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**Address:** 1862 Etheldore Street  
**City, State, Zip:** Half Moon Bay, CA 94019  
**Cross Street:**  
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# **APPENDIX E**

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2012 BALANCE HYDROLOGICS REPORT

**Bases for Hydrologic Analysis of  
Montara-type Watersheds  
San Vicente and Denniston Creeks,  
Moss Beach and Princeton areas,  
Coastside San Mateo County,  
California**

Prepared for:  
Analytical Environmental Services, and  
Coastside County Water District

Prepared by:  
Barry Hecht  
Eric Donaldson  
Austin Jena Krause

Balance Hydrologics, Inc.

July 2012, rev. August 2014


A report prepared for:


**Analytical Environmental Services**  
Address: 1801 7th Street, Suite 100  
Sacramento, California 95814  
Phone: (916) 447-3479  
Attn: P. Bontadelli  
[pbontadelli@analyticalcorp.com](mailto:pbontadelli@analyticalcorp.com)

**Coastside County Water District**  
Address: 766 Main Street  
Half Moon Bay, California 94019  
Phone: (650) 726-4405  
Attn: D. Dickson, General Mgr.  
[ddickson@coastsidewater.org](mailto:ddickson@coastsidewater.org)


**Bases for Hydrologic Analysis of Montara-type Watersheds: San Vicente and Denniston Creeks, Moss Beach and Princeton areas, Coastside San Mateo County, California**

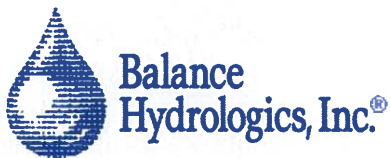
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Project Assignment: 210160  
by

  
Barry Hecht, CEG, CHg  
Senior Principal

  
Eric Donaldson  
Hydrologist/Geomorphologist



  
Austin Jena Krause  
Hydrologist/Geomorphologist



800 Bancroft Way, Suite 101  
Berkeley, California 94710-2251  
(510) 704-1000  
[office@balancehydro.com](mailto:office@balancehydro.com)

July 6, 2012; rev. August 2014

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# 1 INTRODUCTION

## 1.1 Purpose

Denniston and San Vicente Creeks have a unique set of hydrologic, sedimentologic, hydrogeologic and geomorphic processes which reflect the underlying deeply-weathered granodioritic origin of the Montara batholith. These conditions lead to high summer flows, an ultra-mobile sandy bed, and the near-total absence of gravels and the classic pools, riffles, and bars which accumulated gravels form. Seasons, flows, geomorphology, and groundwater linkages all differ substantially from those affecting water, riparian, and fisheries management in most coastal streams. This report is intended to develop a unified discussion of the physical science directing these substantial differences, and set the context for (a) why conventional management regulations or rules-of-thumb do not ‘fit’ this class of watershed, and (b) outlining some alternative keys and approaches to its management.<sup>1</sup>

We developed this report to guide the environmental assessment of proposed diversions from San Vicente and Denniston Creeks, in Midcoast San Mateo County Midcoast. Some of the information comes from other areas of Montara Mountain, a granodioritic batholith underlying most of coastal area between Highway 92 and Devils Slide. Common geologic attributes to Montara-type hydrology are:

- a. a uniform granitic geology underlying entire watersheds that are capable of infiltrating an unusually high proportion of incident rainfall,
- b. deep weathering, typically to depths of 200 to 400 feet, capable of infiltrating and holding large volumes of rainfall;
- c. a geomorphic history with coastal valleys that once carved canyons through the rock to glacially-lowered stands of the Pacific Ocean hundreds of feet below current sea level; and
- d. an episodic sediment regime dominated by wildfires, colluvial-wedge evacuations (“blowouts”), and large floods – all of which generate deep, sandy floodplains and underlying alluvial valley fills with hydrogeologic properties not dissimilar from the deeply weathered sandy soil mantle which forms the slopes.

---

<sup>1</sup> We believe that a few such areas throughout the state share these processes, and can be recognized as having a common DWCG (deeply-weathered coastal granitics) root origin, much as areas underlain by limestone have a common ‘karst’ hydrology. In the manner in which karst is named for its district of origin in the Dalmatian Mountains, we refer to “Montara-type hydrology” in this document to refer to the unique dynamics observed in watersheds of Montara Mountain.

## 1.2 Work Conducted

Our work describing the channels and aquifers of the Montara-type watersheds began 24 years ago (Laduzinsky and others, 1988), and has moved through a sequence of management plans, groundwater planning and exploration efforts, and intensive field monitoring of streamflow and sediment transport. Data and observations from this work, and that of others, are applied throughout the report. For the current evaluation of the Denniston and San Vicente watersheds, we have monitored streamflow and sediment transport in the two channels beginning in summer 2009, with concurrent observations of groundwater levels and field water-quality indicators since December 2010.

## 1.3 Report Organization

We discuss the distinctive patterns of runoff in Montara-type watersheds as part of the next section of this report. The third section discusses sediment, sediment sources, and transport, and how these differ from the geomorphic response of most other coastal watersheds. Water quality is considered in the fourth section, with the fifth directed to groundwater dynamics. We have tried to develop a unified discussion of the properties of Montara-type catchments in the fifth section, followed by conclusions, limitations, and a listing of references cited.

Two tables and six figures discussed in the report follow the references.

## 1.4 Hydrologic Setting

The portion of San Mateo County between the San Andreas and San Gregorio fault zones has been repeatedly fractured and raised under constant pressure for at least the past 15 million years. The incessant deformation has lifted Montara Mountain to elevations approaching 2500 feet above present sea level only a mile or two east of the coastline. Tectonism and the chemical attack of the coastal zone have resulted in universal deep weathering of the granitic rocks. Salt spray and exposure also inhibit growth of the hardwood or conifer woodlands which have developed elsewhere on similar soils receiving the same 30 to 40 inches of mean annual precipitation prevailing along this coast, which supports luxuriant coastal scrub, intermittently broken with patches of trees. A precipitation map of the coast (Figure 1) also shows the location of the San Vicente and Denniston watershed, as well as nearby catchments from which we have used in analyses later in this and related reports. The extent of the underlying granitic rocks and the geologic setting is shown in Figure 2,

The tectonism, chemical action, and glacioeustatic fluctuations over the millions of years have locally weathered the granitic rocks into standing sand. When eroded, the sand fills valleys and streams. Rainfall can fill the sands – on the slopes, in the valleys, and anywhere they accumulate. Sufficient infiltration occurs that the hydrology of the watersheds draining the mountain is altered, with distinctively lower peak runoff, later onset of winter storm and baseflows, and seasonal recession of streamflow into the spring and early-summer months. This report puts numbers on much of this story.



Sandy watersheds with high summer flows result in sand moving to the ocean throughout the year. Lagoons in Montara-type watersheds tend to be small and filled with sand. They are frequently supratidal – freshwater features elevated above the level of the tides (Hastings and others, 2011). Large tidal lagoons, such as have developed at Pescadero Marsh or Rodeo Lagoon, do not seem to have been part of the Montara-type system.

The benchlands at lower elevations in all Montara-type watersheds are capped with marine terraces, often with older, well-developed soils. The terraces and their soils are one of the only portions of these watersheds which are not dominantly sandy. The silt-and-clay zones in the terraces or the claypans in the soils which mantle them often form hard banks and knickpoints along the channels, creating migration barriers and pools which can be open or filled with sand.

## **1.5 Acknowledgments**

Some of the concepts presented in this report developed from earlier work in the Pilarcitos and Gazos Creek watersheds and in assessments of groundwater conditions and surface/groundwater exchange in Montara, Pilarcitos Quarry, and at El Granada. Our colleague Mark Woyshner helped develop an understanding of the weathered mantle as part of work developing groundwater in Montara. Travis Baggett and Jena Krause at Balance led the initial gaging program

, which provide one foundation for this work, as did dialog with our colleague, Jonathan Owens, and with Kellyx Nelson, Karissa Anderson and SMCRCD staff over the past decade or more. Discussions with both CCWD and MWSD staff (and board) helped develop our understanding of the canyon and terrace aquifers. Other contributions came from project colleagues Tim Frahm, Jim Steele, Pete Bontadelli, and Ben Barker. Access provided by the Lea family (Cabrillo Farms) and POST is gratefully acknowledged.

## 2 RUNOFF

Runoff from Montara-type watersheds tends to (a) be greater than watersheds with other geologic substrates, (b) start later in the season, (c) persist later into the summer, and (d) be more modulated, with less peaked runoff during storms and less variation from year to year. This chapter explains the processes and magnitude of these differences, and how they are manifest. It also explores how runoff from the local watershed may differ from regional hydrologic relationships and how regulatory guidances based on regional formulae may not be useful in providing optimal habitat protection and instream flows.

### 2.1 Quantifying Hydrologic Response

While no measurements were made of runoff in adjoining, non-granitic watersheds during water year<sup>2</sup> 2011 (WY2011) concurrent with gaging San Vicente and Denniston Creeks, streamflow data were collected during WY1998, WY1999, and WY2000 in three local unregulated streams which enable a quantitative comparison of the different hydrologic response within Montara-type basins (Table 2). Measurements were made in Apanolio Creek at the rancho line -- a deeply-weathered granitic watershed quite similar to San Vicente and Denniston Creeks -- and in the nearby Mills Creek and upper Arroyo Leon watershed in consolidated sedimentary rocks of Tertiary age with a geology typical of most San Mateo County catchments. This work was conducted for the San Mateo County Resource Conservation District as part of an effort to develop water and sediment budgets for the Pilarcitos watershed, so it was done with equal emphases on high and low flows (Owens and others, 2000)<sup>3</sup>. Measurements began during the wet ("El Nino") WY1998, through two years of near-normal rainfall during WY1999 and WY2000. Rainfall during the three years was 189, 111 and 120 percent of the long-term average at the NOAA Half Moon Bay station, respectively.

The data presented in Table 1 indicate that the annual runoff during 1998, 1999 and 2000 is somewhat higher in Apanolio Creek, the Montara-type stream. Apanolio Creek had much more runoff during the 1999 water year; in contrast, runoff was essentially identical in 1999 and 2000 in the two basins underlain by Tertiary sedimentary basins. The year-to-year persistence of surface water flow in Apanolio Creek indicates that this Montara-type basin had stored and gradually released more groundwater from the wet 1998 El Nino. Subsequent dry season measurements show that summer runoff is proportionally higher in Apanolio Creek during summer and in drier years, consistent with this interpretation.

During our full year of gaging in water year 2011, Denniston and San Vicente Creeks had virtually the same amount of rainfall as in 1999, however there was less unit runoff (about 0.9 and 1.1 cfs/sq. mi in San Vicente and Denniston Creeks respectively) when compared to

---

<sup>2</sup> Streamflows are generally measured on a 'water year basis', beginning on October 1 and ending on September 30 of the named year. Water year 2011 (WY2011) began on October 1, 2010, and extended through September 30, 2011.

<sup>3</sup> Available online at <http://www.balancehydro.com/reports.php>

Apanolio Creek during the 1999 water year (1.67 cfs/sq. mi). We attribute this difference to WY2010 (and WY2009) not being nearly as wet as WY1998 (and WY1997, 1996 and 1995).

Persistence not only affects year-to-year differences following major recharge seasons, but also daily and monthly flows. Brown and others (2013) found that correlations between the Montara-type streams and conventional watersheds were unstable over the course of a season, with the two local streams yielding more than twice as much flow in April, May and June than was predicted from a correlation which worked well earlier in the season. The progressive seasonal shift and the need to adjust for year-to-year persistence in the correlations are described in our unimpaired flow analyses (Brown and others, 2013).

The typical coastal watershed has clear distinctions between winter and summer conditions. Water-rights and habitat-management regulations generally end the winter season on March 31; grading regulations commonly transition from winter to summer construction season on April 15, when modifications of streams can begin. The seasonal shifts recognize fundamental changes in stream processes and watershed dynamics in most coastal channels. We find it much more difficult to identify these changes in Montara-type streams, other than the diminishing roles of storm events. Baseflows remain elevated. Sediment transport continues, usually at habitat-significant rates. Seasonal distinctions seem to have much less meaning in the local channels; to the extent that they can be discerned, different dates may be warranted.

## 2.2 Inferred Processes Resulting in a Distinct Hydrologic Response

Fundamental differences in hydrologic process can be seen when comparing the actual hydrographs for WY2011 in Montara-type streams and other nearby coastal watersheds. Figure 3, a comparison of these local channels with a small watershed of Franciscan geology (San Geronimo Creek in West Marin) and San Francisquito Creek at Stanford, which drains a watershed principally underlain by Tertiary sedimentary rocks.<sup>4</sup> The figure shows results on a runoff per square mile basis ('unit runoff') to allow comparisons of watersheds of different sizes:

- a. Runoff during storms peaks at much lower flows and may be somewhat briefer than in conventional watersheds. The Montara-type streams have more modulated peak flows. For the same storms, peak flows are, commonly about 25 to 50 percent of those of the

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<sup>4</sup> Selected for their long periods of record (30 and 70 years, respectively) and for mean annual rainfalls within about 20 percent of the San Vicente and Denniston average rainfall. Storage on San Francisquito Creek is limited to about 150 acre feet at Searsville Lake. Note that the comparison is shown on a logarithmic scale.

two Tertiary-sediment channels. We attribute the difference mainly to higher rates of infiltration throughout the watershed.<sup>5</sup>

- b. Runoff during a given seems to begin earlier during the fall and winter in the sedimentary watersheds. While it is hard to discern at the scale of Figure 3, runoff from the Montara-type watersheds appear to commence a number of hours later, at least for storms separated by several days without storm runoff, which allows the surficial soils to drain into the weathered mantle or canyon soils.
- c. Both winter and dry-season baseflows are much higher in Montara-type watersheds, We interpret the higher baseflows to result from gradual drainage of a much larger volume of rainfall recharge from both the weathered mantle and the soils and aquifers of the canyons.
- d. Runoff is delayed further into the runoff year, with winter patterns of storm runoff beginning later and runoff prolonged much longer into the spring. This pattern is consistent with the primary mechanism we propose -- rainfall filling a larger volume of storage before beginning to run off.

In addition to substantial infiltration and apparently much larger volumes of storage in the deeply-weathered mantle, it may be worthwhile speculating on the role of vegetation. Despite rainfall averaging in the mid-30 inches (c.f., Rantz, 1971; Sa'ah and Nahn, 1989), the Montara-type watersheds support primarily coastal scrub<sup>6</sup>, with (a) lower evapotranspiration rates and (b) roots which may not extend into the main areas of groundwater storage deep in the weathered mantle.

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<sup>5</sup> The drainage density of the deeply-weathered coastal granitics of Montara-type watersheds is usually lower than that in the catchments developed in Tertiary sediments to the south. Runoff often moves to the main channels as sheetflow in swales, a much slower process than flowing quickly through the small gullies typical of the sedimentary basins. This also contributes to lower unit-runoff peaks in the Montara-type basins.

<sup>6</sup> It may be worth noting that many coastal areas in San Mateo and Santa Cruz Counties with rainfall averaging in mid-30 inches support a mixed hardwood forest (for example, the Forest of Nisene Marks north of Aptos) or conifer forest (for example La Honda or the mid-Pescadero watershed, These forest types exert estimated evapotranspiration rates of 24 to 32 inches, essentially double the 13 to 15 inches measured for coastal scrub in the mountains rimming the north side of the Pajaro Valley (Blaney and Ewing, 1949). More water is available to slowly flow out to the main creeks, most noticeably during summer months or drier years. Using conservative values of 14 and 24 inches for evapotranspiration in Montara-type streams and other basins, respectively, the gross difference available for flow to San Vicente Creek would be about 0.84 cfs (assuming 1.1 square miles of coastal scrub in a 1.75-sq. mi. watershed) and 1.45 cfs (assuming 1.9 square miles in the 2.8-square-mile Denniston Creek. Other losses (such as flows to fractures which drain to the ocean, not the creeks) will diminish these values somewhat; nonetheless, the role of diminished evapotranspiration on flows in the Montara-type creeks is considerable.

### 3 SEDIMENT SUPPLY AND TRANSPORT

#### 3.1 General

Sediment in Denniston and San Vicente Creeks, as is typical for Montara-type channels, is overwhelmingly sandy. Sand is also the predominant sediment type in the alluvium beneath the valley floor, shaping groundwater conditions and the woody-vegetation mosaic.

#### 3.2 Sources

Sediment enters the channels principally from the adjoining hillsides. Delivery is likely highly episodic, with much or most of the sediment entering the channel following major storms, wildfires, and floods. Debris flows and mud floods tend to be widespread following major storms, such the December 1955 and January 1982 events (Wieczorek and others, 1988; Cannon and Ellen, 1988) where many of the colluvial wedges accumulating in each zero-order declivity failed. Deep gullies can be cut into the colluvial aprons at the bases of the slopes, and are discharged directly into the channels. While watershed-scale fires have not been recorded during the past 80 years, they should be expected in coastal scrub. Studies in other steep coastal granitic streams have shown that one-third to one-half of the long-term sediment yield can be the stream system during the three to five years following such an event (Richmond, 2009; Hecht, 1981). Observations in Apanolio Creek following human-induced slope disturbance (Purcell & Rhoads, 1988) suggests that the Montara-type streams are similarly prone to post-disturbance sedimentation. Finally, the streams periodically migrate into the colluvial aprons at the base of the slopes, leaving unsupported, sometimes unvegetated bluffs which spall and collapse into the channel. Following episodic sediment delivery, channels can fill to (or nearly to) the level of the valley floor; during subsequent decades, the channel tends to gradually incise until re-filled following a “30-year major” storm or a “60-year wildfire. Logjams provide channel stability and grade control to long reaches of both channels. Long-lasting wood, such as eucalyptus or (in a few cases) redwood prevent rapid incision of the middle reaches of both channels. Elsewhere, interpenetrating willow or bay roots stabilize the channel bed.

#### 3.3 Composition

Sediment in Montara-type streams is almost exclusively of granitic origin. Most sediment in the channels is sand. In many locations, bed material is composed of 90 to 95 percent sand, with silt and very fine gravel (2 mm. to 8 mm) comprising almost all of the remainder. Minimal or no gravel- or cobble-sized material can be observed, either at the surface or at depth in the bed.<sup>7</sup>

Transport rates are high, sometimes very high, relative to nearly all coastal streams. Figure 5 shows that measured sediment transport at a given flow can be 2 to 50 times higher in the Montara streams than in other coastal channels which support salmonids (Hecht and Owens,

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<sup>7</sup> Biologist Jim Steele reports that gravels in sufficient concentration to provide even marginal spawning substrate could be found at only one location in Denniston Creek and none in San Vicente Creek upstream of Highway 1.

2006). The observed rates are high relative to other streams in the region draining Franciscan or Tertiary-sedimentary terranes, either locally in San Mateo County or in nearby areas such as Marin and Santa Clara Counties. The disparity is greatest at low and medium flows, during which the Montara channel can transport considerable loads at rates which would be below the discernible sediment-transport threshold in other regional channels – including some, such as Devils Gulch and San Geronimo Creek in Marin County or the San Lorenzo River system in Santa Cruz County, where high sediment-transport rates are known to inhibit aquatic habitat values (Ricker, 1979; Hecht and others, 2010).<sup>8</sup>

The Montara-type channels also transport a very high proportion of bedload in comparison to most other coastal creeks. Bedload and suspended load are moved at approximately equal transport rates in the Montara-type channels (see Table 2). By comparison, bedload comprises only about 5 percent of the sediment load in the San Lorenzo River, and only about 10 to 15 percent in the San Geronimo/Lagunitas Creek system (Hecht, 2007; Knudsen and others, 1992; Hecht and others, 2010). High bedload transport rates generate unstable beds, and (to a lesser extent) channel banks. Streams with high bedload transport rates, therefore, tend to have much higher losses of steelhead redds due to scour, and smothering of eggs in the gravels.

### **3.4 Deposition and Beach Supply**

Beach supply along the San Mateo County Midcoast is provided by a variable combination of longshore drift from the Golden Gate -- a major sediment source --, erosion of the coastal bluffs and Devils Slide, and channel delivery (see Hastings and others, 2009). Based on both coastal sand budgets (Yancey and others, 1972) and the mineralogy of gravels on the interior coastal shelf (Spotts, 1958; Wilde and others, 1973; Wong and Klise, 1986; Wong, 1989), the streams supply a relatively small percentage of long-term sand supply. Year-to-year variability in sand supply is substantial, varying with both tidal (in San Francisco Bay), littoral, and terrestrial currents and with the rate of coastal sand delivery. At the regional level, changes in sediment delivery and coastal sediment dynamics from the volume of sediment transported from the two channels will be very small.

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<sup>8</sup> An important distinction is that San Geronimo Creek and the San Lorenzo River have relatively high levels of watershed disturbance (c.f., Brown, 1973), whereas the high transport rates observed in Montara streams are commonly from watersheds with little obvious anthropogenic disturbance.



## 4 WATER QUALITY

Water quality is important, in part, because the unusually low mineral content of both surface and ground waters underscores the deeply weathered granitic mantle, largely leached of soluble minerals over tens of millions of years. It is also important because (a) generally, quality is so high, reflecting substantial and deep recharge during most years, (b) because the soils are open to recharge, such that nitrates and other surficial contaminants can enter the soils and aquifers, with few restrictive horizons to attenuate deep percolation of constituents applied at the surface, and (c) water quality allows us to trace paths of water movement, particularly of recharge, informing us of the processes operative in Montara areas, and how they differ from other watersheds. Water-quality patterns are one of the most informative aspects of the Montara hydrologic system.

### 4.1 Solutes

Solute concentrations (also known as 'salts', or 'mineral content') tell us much about how water moves in the Montara-type streams. Balance staff measure overall salinity whenever streamflow or well conditions are measured. Deeply weathered granitic rocks yield some of the least-mineralized, highest-quality waters throughout California's central coast. Groundwater from the weathered granitics of Montara Mountain typically produce waters with total dissolved solids (TDS) content of 150 to 300 mg/L, roughly 25 to 35 percent of the minerals in the Purisima aquifer, the other principal source of groundwater in the Midcoast (Purcell & Rhoads, 1988; Woynshner and others, 2001). The salinities of wells and of Montara-type streams are very similar, suggesting strongly that they are connected. Similarly, the Montara-type streams and wells yield water, with about 10 to 15 percent of the sodium levels found in the adjoining sedimentary bedrock aquifers, providing an especially healthful source for community water supply. Streams emanating from the granitics have the similar and consistent low TDS content. The very low mineral content has been used locally to identify natural recharge plumes from the granitic rocks where these waters mix with other sources, such as beneath El Granada and Moss Beach (see Laduzinsky and others, 1988). Differences between waters in the weathered granitic aquifers and those of other San Mateo County aquifers are greatest during dry years and drought periods, when the weathered mantle yields water of near-constant quality, while other streams and aquifers are experiencing steady increases in salinity as progressively deeper and more-mineralized waters predominate.

Figure 6 compares the mineral content of Denniston Creek and Los Trancos Creek, a steelhead-supporting watershed in Portola Valley underlain primarily by Tertiary sedimentary rock. The figure compares the mineral loads of the two streams – which have similar drainage areas, relief, and rainfall -- over the typical range of streamflows. The differences between the chemistries of the two rocktypes are evident. At a given streamflow, Denniston Creek conveys about 40 percent of the minerals ('solute load') transported by Los Trancos Creek, a watershed of similar size, relief, and rainfall underlain almost entirely by Tertiary sedimentary rocks..



## 4.2 Nitrates

The open, rechargeable nature of the weathered granitics -- and the alluvial deposits derived from them -- makes them susceptible to constituents introduced from the surface. Nitrate, which only rarely is found in elevated concentrations in natural systems, is the principal constituent which enters these open systems from various land and water uses in the area. The highest nitrate contents in the Midcoast occur in areas with granitic substrate, or alluvium and terrace deposits derived primarily from the granitics. Nitrate contributions, the subject of an ongoing Critical Coastal Areas study by SFEI, illustrate the near-universally infiltratable properties of these soils.

## 4.3 Tracing the Paths of Recharge

We have found that water quickly enters the soils of Montara-type watersheds, percolating through the weathered granitic rocks to a water table at the base of the weathering zone, and then to the stream, commonly through the alluvium of the valley floor. Rain falling on the valley floors recharges alluvium -- composed of mobilized weathered granitic material, and thence to the adjoining stream. Similar total dissolved solids concentrations in streams, the granitic 'aquifer', and alluvium in the canyons shows that water moves freely through these systems. During intense or prolonged rains, water runs across the soil surface into the stream system. Occasional values of much lower specific conductance<sup>9</sup> (see Figure 6 for Denniston Creek) are observed in the channels, which we interpret as such times. At all other times, the consistent values of specific conductance which we observed seem to indicate high rates of recharge, passage through the weathered rocks and/or alluvium and flow to the stream through the soil or subsurface. If so, the specific conductance values demonstrate the high rates of infiltration, a mechanism consistent with the high baseflow, low peak rates of storm runoff and persist groundwater support for summer flows.

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<sup>9</sup> Specific conductance, a measure of a fluid's ability to conduct an electrical current, is an index of the solute concentration of most natural waters. The greater the mineral (or dissolved solids) content, the higher the conductance, which is typically measured with a simple field meter. Specific conductance is a measure of conductance at 25°C, expressed in units of micromhos per centimeter, or microsiemens ( $\mu\text{S}$ ). The relationship between specific conductance and TDS is well-estimated by a set of complex polynomials found in many texts; more generally, a value of 300  $\mu\text{S}$  typically corresponds to a total dissolved solids concentration of about 200 mg/L.

## 5 GROUNDWATER DYNAMICS

Groundwater occurs within three types of large aquifer systems in Montara-type watersheds:

- The weathered mantle, and underlying fractured rock
- The canyon alluvium
- The terraces and the 'airport aquifer'.

Our work elsewhere on Montara Mountain has shown the weathered mantle to frequently extend to depths of 300 feet, although bedrock is sometimes encountered at shallower depths. Wells developed in the weathered mantle commonly yield sufficient water to support individual homes or small community wells, with rare instances of high-capacity wells supplied by fractures. The alluvium within the Denniston and San Vicente canyons is composed of material derived solely from the weathered granitics, and demonstrates similar aquifer properties and yields. The lenses and horizons of gravels and cobbles found in most coastal alluvial aquifers go virtually unreported in the Montara streams. The canyon alluvium is typically 60 to 150 feet deep, gradually deepening coastward. Transmissivities of the alluvium are often in the range of 2000 to 6000 gallons per day per square foot (Laduzinsky and others, 1988; Woyshner and others, 2009), or about a fifth to a twentieth of the values reported from many other alluvial aquifers which contain layers of gravel (see, Hecht and others, 1983). In part because of the lower transmissivities and ones which are similar to each other, exchange of flows between the streams and aquifers are much limited than in many other coastal systems, although exchange does occur.<sup>10</sup>

In summary, the groundwater system of the Montara-type watersheds is a blend of deeply-weathered granitics, canyon alluvium, and coastal terraces. The capacity of the composite system is large, but water is exchanged relatively slowly, due to the almost total absence of sand and gravel zones within the aquifers. Large capacity allows considerable storage, with water yielded at relatively slow rates. Rapid infiltration into the aquifer from the streams or rapid outflow from the aquifer is not reported. The groundwater system contributes to the muted flows in the streams by accepting and slowly yielding considerable recharge from rainfall. The water contains very low mineral content because the weathered granitics have been deeply and thoroughly leached over tens of millions of years.

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<sup>10</sup> Marine terrace deposits are a third type of aquifer, locally developed largest for single-family use. The terrace aquifers are more complex features underlying the open benchlands along the coast. Exchange with the two streams is limited. The terrace aquifers are described in numerous prior reports discussed in Woyshner and others, 2001.

## 6 DISCUSSION

Management of wildlands in California is often directed by regional norms, or by assumptions based on landscape-shaping processes thought to occur most frequently or to have a long-term 'dominant' influence in an equilibrium model of a landscape. Frequency is particularly important in management of coastal streams supporting anadromous salmonids, which have a defined life cycle, commonly 3 years (coho) or several years (steelhead). Normal conditions, therefore, tend to be particularly important in managing a given year's salmonid cohort. There is a reasonable bias toward using typical, regional, or 'normal' conditions to develop guidelines for managing habitat for such fish.

Denniston and San Vicente Creeks exhibit a set of hydrologic processes which do not conform to the regional norms in several crucial respects:

**Seasons of flow:** Data to date suggest that the basic seasonal division into a 'regulatory winter' (December 15 to March 31) and 'regulatory summer' do not easily fit the hydrology of Montara-type streams, where this distinction is muted, delayed, and may not be very useful for the fundamental concept of 'baseflow'.

**Year types:** While data are of limited duration, conventional year types such as "wet", "normal", "dry" and "critically dry" may not be as useful as other concepts such as "years following recharging years" or years following very wet recharging years".

**Channel management:** With large wood serving as a crucial element in channel stability, conventional concepts such as bankfull geometry, pool-and-riffle configuration, or annual scour depth may not be as germane to management as in other channels. It is possible that the time since the last episodic event – such as watershed-scale wildfires or major storms – may be a more relevant predictor of channel geometry than regional bankfull relations. Or, that management of sediment yields or sediment delivery to the beaches (including Fitzgerald Marine Reserve) may be more usefully approached recognizing that a very large proportion of the long-term yield may occur within 1-3 years following an episodic event.

**Bed conditions:** Conventional notions of a gravel bed with coarsened bed-surface material have dominated compliance conditions for regulatory permits in central coast streams supporting salmonids since the foundational work of the late 1970s. San Vicente and Denniston creeks have deep, sandy beds, conditions which by all accounts have persisted for at least several decades. Spawning gravel availability may legitimately be a limiting factor. Bed mobility occurs during all seasons. Flushing flows may not be a rejuvenating aspect of this system.

During years with normal watershed conditions, in-channel periphyton and insect production may be fundamentally different than in other channels, ones in which bedload is not transported during summer. During most years, the bed in these Montara-type streams is continuously disturbed.

**Hydrology allometry:** Relative to other coastal streams with different watershed geology, the Montara-type creeks have a relatively even, or muted hydrologic fluctuation which may make any single metric, such as mean February flow, a less-useful predictor of flows during other months or seasons.

## 7 CONCLUSIONS AND RECOMMENDATIONS

Denniston and San Vicente Creeks have a unique set of hydrologic, sedimentologic, hydrogeologic and geomorphic processes which reflect the underlying deeply-weathered granodioritic origin of the Montara batholith. We believe that such areas throughout the state share these processes, and can be recognized as having a common DWCG (deeply-weathered coastal granitics) root origin, much as areas underlain by limestone have a common 'karst' hydrology. In the manner in which karst is named for its district of origin in the Dalmatian Mountains, we refer to "Montara-type hydrology" in this document to refer to the unique dynamics observed in watersheds of Montara Mountain.

Common geologic attributes to Montara-type hydrology are (a) a uniform granitic geology underlying essentially all of the watershed capable of infiltrating an unusually high proportion of incident rainfall, (b) deep weathering, typically to depths of 200 to 400 feet, and (c) a geomorphic history reflecting eustatic rise-and-fall of sea level during the Pleistocene era of the past 2 million+ years, (d) jointing and faulting leading to consistent, slow draining of large masses of bedrock to the adjoining channels, and (e) an episodic-event regime dominated by wildfire/flood cycle, colluvial-wedge blowouts, and large floods – all of which generate deep, sandy floodplains and underlying alluvial valley fills not dissimilar hydrogeologically from the deep, sandy weathered soil mantle which forms the slopes.

Common climatic and vegetational attributes are (a) maritime climate, with fog and sufficient coastal breezes to help suppress growth of deep-rooted forest plants, and (b) coastal scrub as the dominant vegetation, with valleys dominated by willows and non-native species providing much of the stability to channels developed in sandy substrate. The lower evapotranspiration rates of the coastal scrub, relative to the woodlands or conifer forest which have developed in most other Santa Cruz Mountains watersheds receiving about 35 inches of mean annual rainfall, make considerable available for high water yields, as much as 0.8 to 1.5 cfs on a 24/7 basis from the two watersheds.

These processes lead to streams with muted and lagged storm and seasonal hydrographs. Peak flows for any given storm are typically 25 to 50 percent of those in adjoining watersheds with non-granitic hydrology. Event and seasonal hydrographs occur later and are more drawn out. Summer low flows are somewhat larger and begin later than in most coastal streams. Multi-year droughts are far more significant (both biologically and for water supply) than the one- or two-year droughts which are most critical to other coastal streams in San Mateo and adjoining counties.

Geomorphically, "Montara-type watersheds" are drained by sandy bedload-dominated channels, remarkably deficient in gravels, and relatively low in clay content. At the coast, the Montara-type streams tend to have small, embryonic, or supratidal coastal lagoons.

Montara-type watersheds present a more challenging environment for steelhead than might be expected solely from their flows, because:

- Lagoons are absent or constrained
- Beds are very sandy, filling pools, inhibiting growth of periphyton or insect food bases, and
- little or no availability of spawning gravels

Additionally, large wood capable of generating bank and flow complexity is sometimes deficient or rare, except where eucalyptus or other woody exotics have been planted. Perhaps because floodflows in tributaries are muted, streamwood consists mainly of softwood, where eucalyptus are not present. Little in the way of conifer or oak-madrone wood recruitment occurs. The softwoods likely benefit from the reliable water supplies in the creeks.

Special management strategies may be warranted in valleys with Montara-type hydrology:

- a. traditional seasonal distinctions between of a “winter” season and “summer” season may not apply easily to San Vicente and Denniston watersheds. year-to-year persistence in flows, and the number of years since a major recharge event, may be as or more important influences on seasonal flows than the amount and timing of rainfall during the previous winter;
- b. care in managing nitrate or constituents which can infiltrate from surface applications or spills may be warranted, as they are not assimilated as efficiently as in other areas with more clays, tending to infiltrate to the water table;
- c. recruitment of gravel-sized material warrants protection, to the extent that it does occur, as these materials provide spawning and support riffle habitat in a few locations;

## 8 LIMITATIONS

This report is a synthesis of data developed for multiple purposes. Subsurface data, in particular, collected in Montara, Moss Beach, El Granada, and elsewhere has been used to extend inferences about water movement which we have made based on our observations in the Denniston and San Vicente watersheds. The report is also based on gaging data which are preliminary and subject to review, and has been collected over relatively short time span. With these cautions, use of the data and interpretations herein conform with the normal standard of care in the region for reports of this type. The report is based in part on published resource-inventory data, such as geologic, soils, or precipitation maps, which we have accepted without independent verification.

Observations and data from others are most welcomed, and may be included (with attribution) in future versions of this and related documents. Those who have additional measurements, data, or observations are most welcome to provide them to either author or CCWD at the contacts given on the signature page of this report.



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## TABLES

**Table 1. Mean annual runoff in granitic and sedimentary watersheds, northern San Mateo County, Water Years 1998-2000**

Station Location	Watershed Geology	Drainage Area		Total Runoff for Water Year		Unit Runoff for Water Year		Mean Annual Rainfall <sup>2</sup>
		(acres)	(sq. mi.)	(cfs-days)	(ac-ft)	(cfs/sq. mi)	(ac-ft/sq. mi)	

**Water Year 1998 (189% of mean annual rainfall at Half Moon Bay)**

Arroyo Leon above Mills Creek	Consolidated Tertiary sedimentary fms	1664	2.6	2297	4555	2.42	1752	36
Mills Creek at Higgins Road	Consolidated Tertiary sedimentary fms	2445	3.82	3117	6183	2.23	1618	36
Apanolio Creek near Gossett Residence	Deeply weathered Montara granitics	717	1.12	1046	2075	2.57	1852	37

**Water Year 1999 (111% of mean annual rainfall at Half Moon Bay)**

Arroyo Leon above Mills Creek	Consolidated Tertiary sedimentary fms	1664	2.6	989	1962	1.04	755	36
Mills Creek at Higgins Road	Consolidated Tertiary sedimentary fms	2445	3.82	1311	2600	0.94	681	36
Apanolio Creek near Gossett Residence	Deeply weathered Montara granitics	717	1.12	682	1353	1.67	1208	37

**Water Year 2000 (120% of mean annual rainfall at Half Moon Bay)**

Arroyo Leon above Mills Creek	Consolidated Tertiary sedimentary fms	1664	2.6	880	1746	0.92	672	36
Mills Creek at Higgins Road	Consolidated Tertiary sedimentary fms	2445	3.82	1170	2321	0.84	608	36
Apanolio Creek near Gossett Residence	Deeply weathered Montara granitics	717	1.12	496	984	1.21	879	37

**Notes:**

Source: Gaging conducted by Balance Hydrologics for the San Mateo County Resource Conservation District (Owens and others, 2000)

\*\* Data from NOAA raingage at Half Moon Bay, CA, where the long-term average is 26.58 in: WY1998=50.2 in; WY1999=29.6 in; WY2000=31.6 in; WY2011=29.5 in

<sup>2</sup> Mean annual rainfall is approximated base on mean annual rainfall map by Rantz, 1971

<sup>3</sup> Water Year 2011 is not complete. Data to 7/27/11

**Table 2. Bedload as percent of total sediment load in selected salmonid streams, coastal California**

Stream and Station	County	Bedload as percent of total sediment load	Predominant watershed geology	Information source	Remarks
San Vicente Creek	San Mateo	39%	Granitic	Balance Hydrologics file data	2011 data at 3 stations
Denniston Creek	San Mateo	54%	Granitic	Balance Hydrologics file data	2011 data below Capistrano Way; below Denniston Dam
San Geronimo Creek at Lagunitas Road	Marin	23% (1980-82), 21% (2005-11)	Franciscan	Balance Hydrologics file data	1980-1982 and 2005-2011
Devils Gulch at Sir Francis Drake Hwy	Marin	32%	Franciscan	Hecht, 1983	1980-1982
Uvas Creek above Uvas Reservoir	Santa Clara	5% to 12%	Franciscan and Tertiary sedimentary	Hecht and Enkeboll, 1980	Based on USGS data for 4 years
Llagas Creek at Buena Vista Rd near Gilroy	Santa Clara	4%	Franciscan, alluvium and Tertiary sedimentary	Strudley and others, 2011	66 square miles
Los Trancos Creek at Arastradero Road	San Mateo + Santa Clara	39%	Tertiary sedimentary	Balance Hydrologics file data	Gage is on county line
El Corte de Madera Cr, at Westridge Road, Portola Valley	San Mateo	19%	Tertiary sedimentary	Balance Hydrologics file data	
San Lorenzo River at Bigtrees (Felton)	Santa Cruz	5%	Tertiary sedimentary	Hecht and Enkeboll, 1980; Balance Hydrologics file data	USGS data (1973-1977) and measurements by Balance staff
Zayante Creek at Woodwardia Dr. (Felton)	Santa Cruz	4%		Hecht and Enkeboll, 1980;	26% of gravels found to be of imported rocks types, thought to originate from roads
Salinas River at Santa Margarita Lake	San Luis Obispo	26+/-	Tertiary sedimentary	Interpreted from Glysson, 1977	Knudsen and others, 1992
Sespe Creek near Fillmore	Ventura	54%	Tertiary sedimentary	Williams, 1979	
San Juan Capistrano Cr. at La Novia Dr. (San Juan)	Orange	59%	Granitics and Tertiary sedimentary	Kroll and Porterfield, 1969	Prior to inception of gravel mining

**Notes**

1. Channels have unregulated and unimpounded watersheds except as shown. For the Bay Area counties, we have emphasized small (<20 sq. mi.) where feasible.
2. Data sources are cited in the list of references in the report.



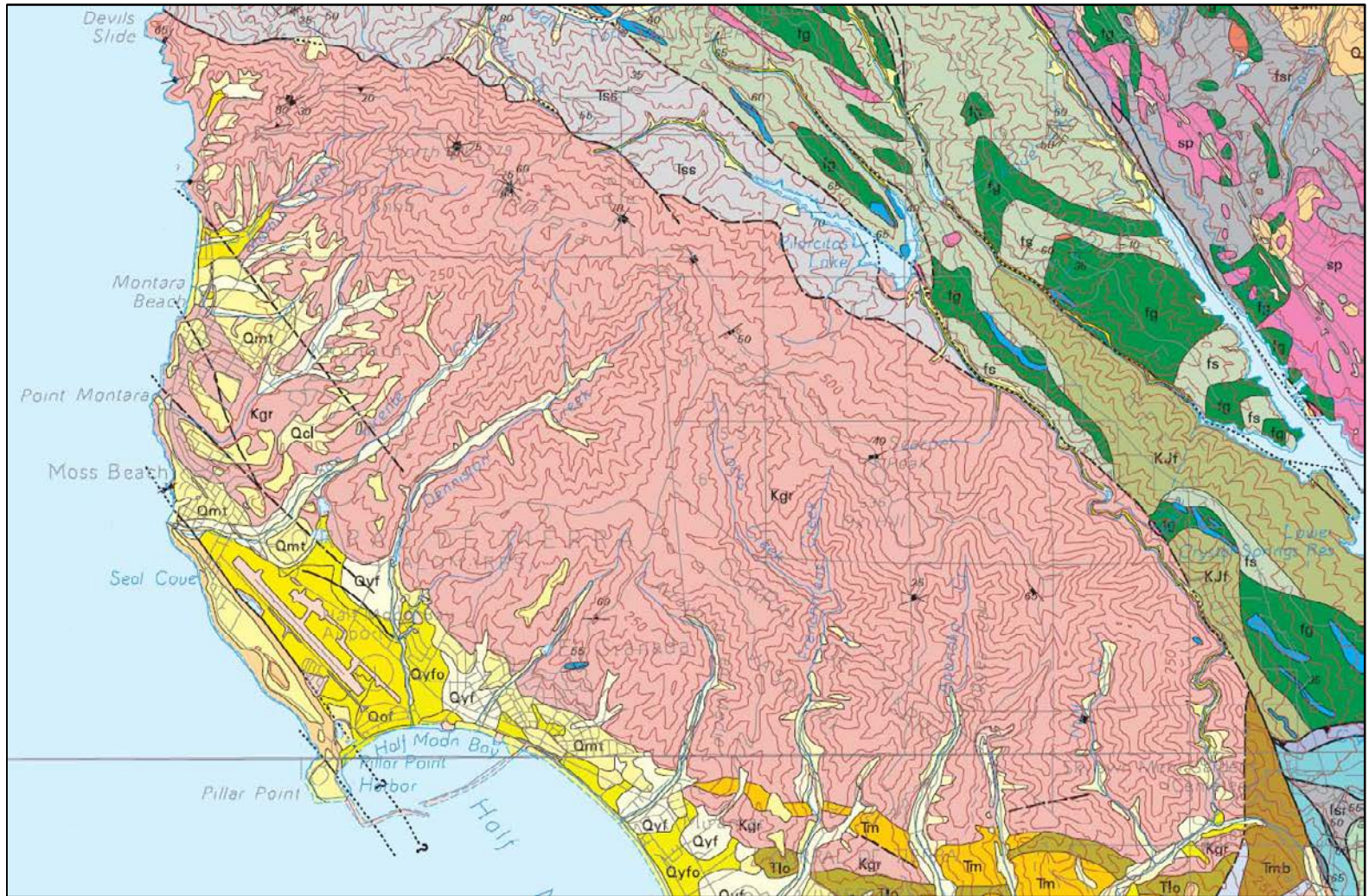
## **FIGURES**





**Figure 1. Mean annual precipitation map for Marin and San Mateo Counties, California, showing locations of watersheds.**





**Kgr** **Granitic rocks of Montara Mountain**—Very light gray to light brown, medium-to coarsely-crystalline foliated granitic rock, largely quartz diorite with some granite. These rocks are highly fractured and deeply weathered. Foliation is marked by an alignment of dark minerals and dark dioritic inclusions.

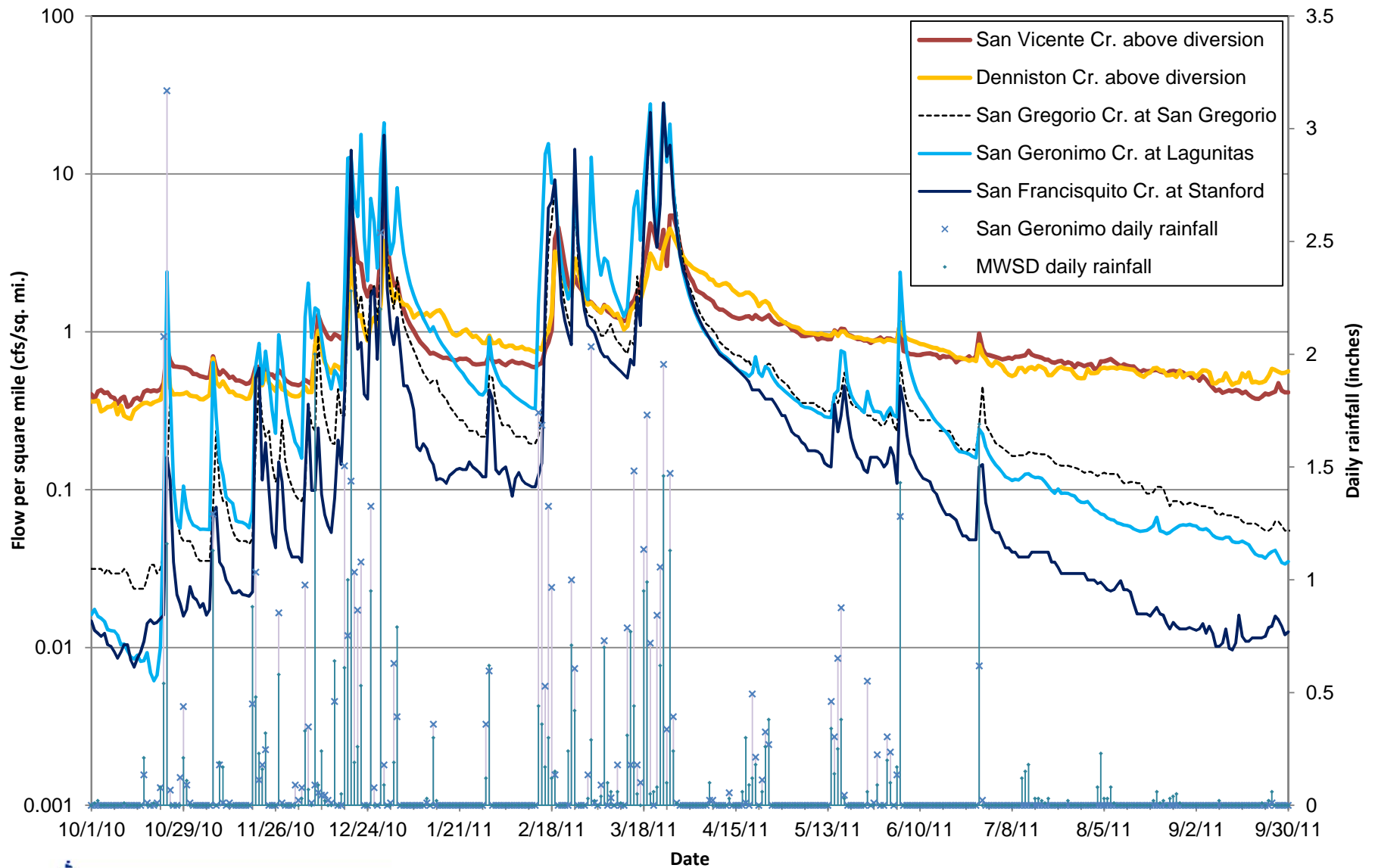


**Balance  
Hydrologics, Inc.**

210160 F2 Geolmap.pptx

**Figure 2. Geologic map of Montara Mountain and nearby areas, San Mateo County Midcoast.**

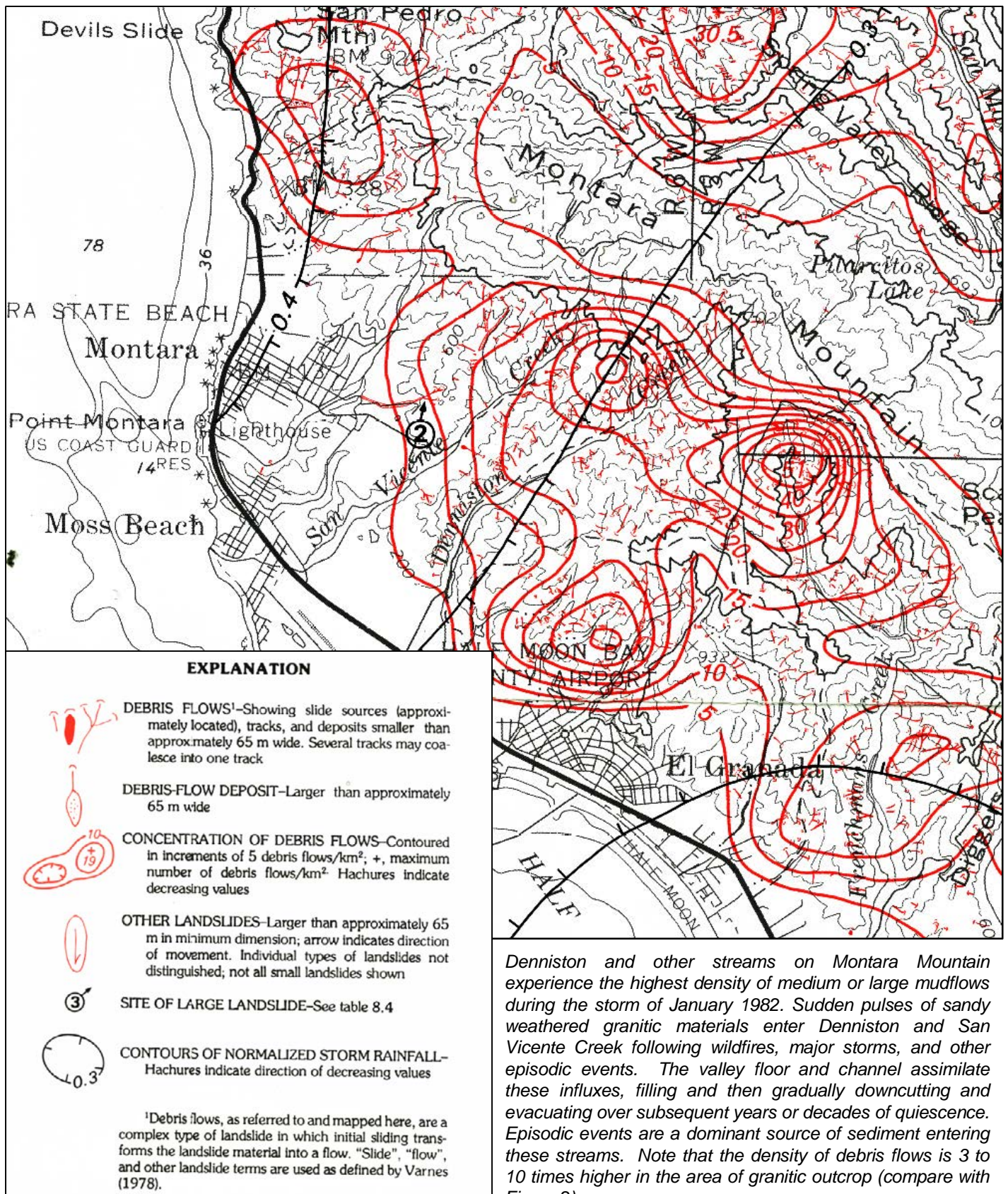
Source: USGS Open File 98-137



**Balance Hydrologics, Inc.**<sup>®</sup>

**Figure 3. Daily mean flow per square mile for San Vicente, Denniston, San Gregorio, and San Geronimo Creeks, WY 2011.** Rainfall records for the San Geronimo Valley and for the MWSD rain gage at the Alta Vista wells are shown.





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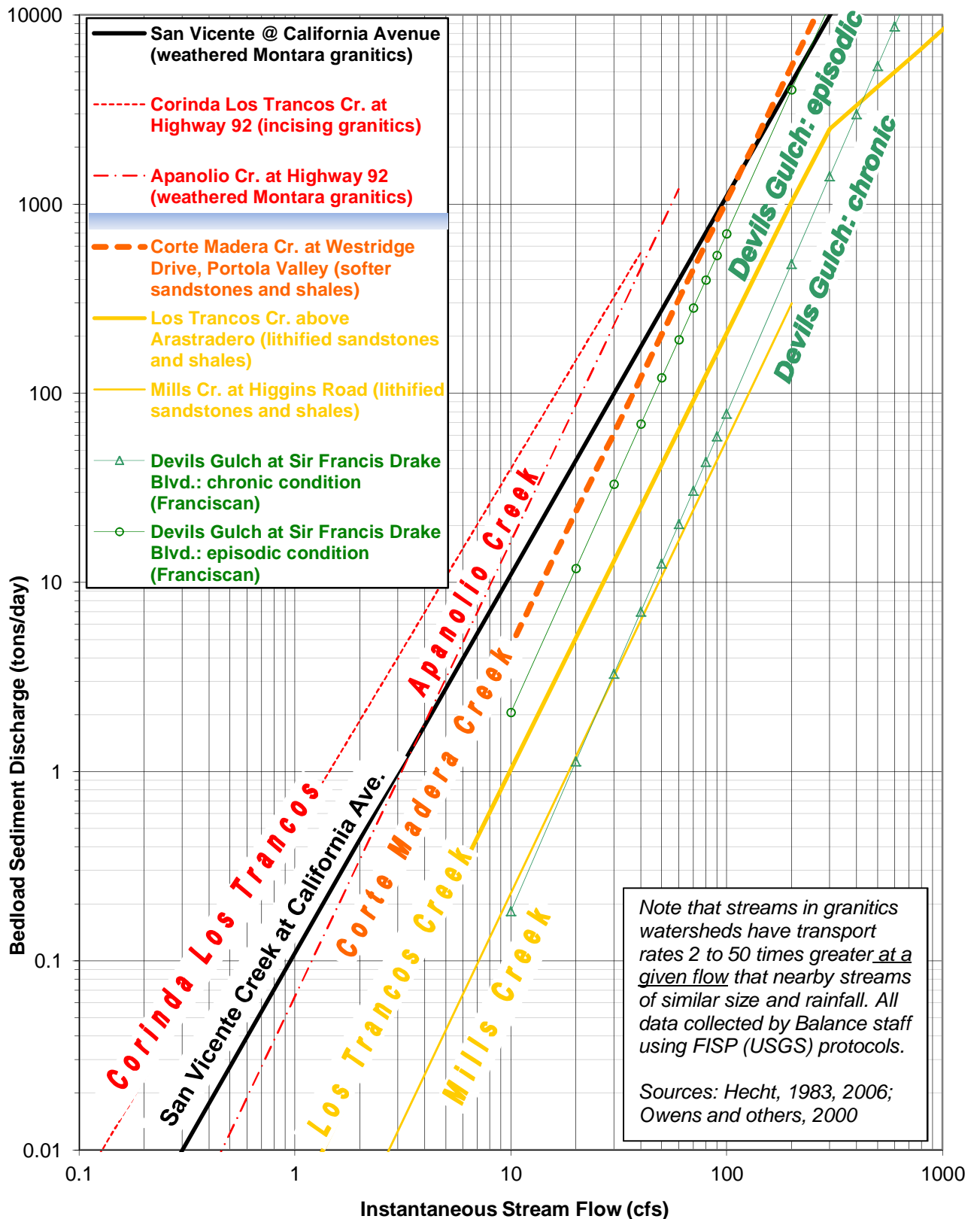
210160 F4 Debris flows.pptx

**Figure 4.**

**Debris flows as an index of episodicity in Montara-type streams, northern San Mateo County, California.**

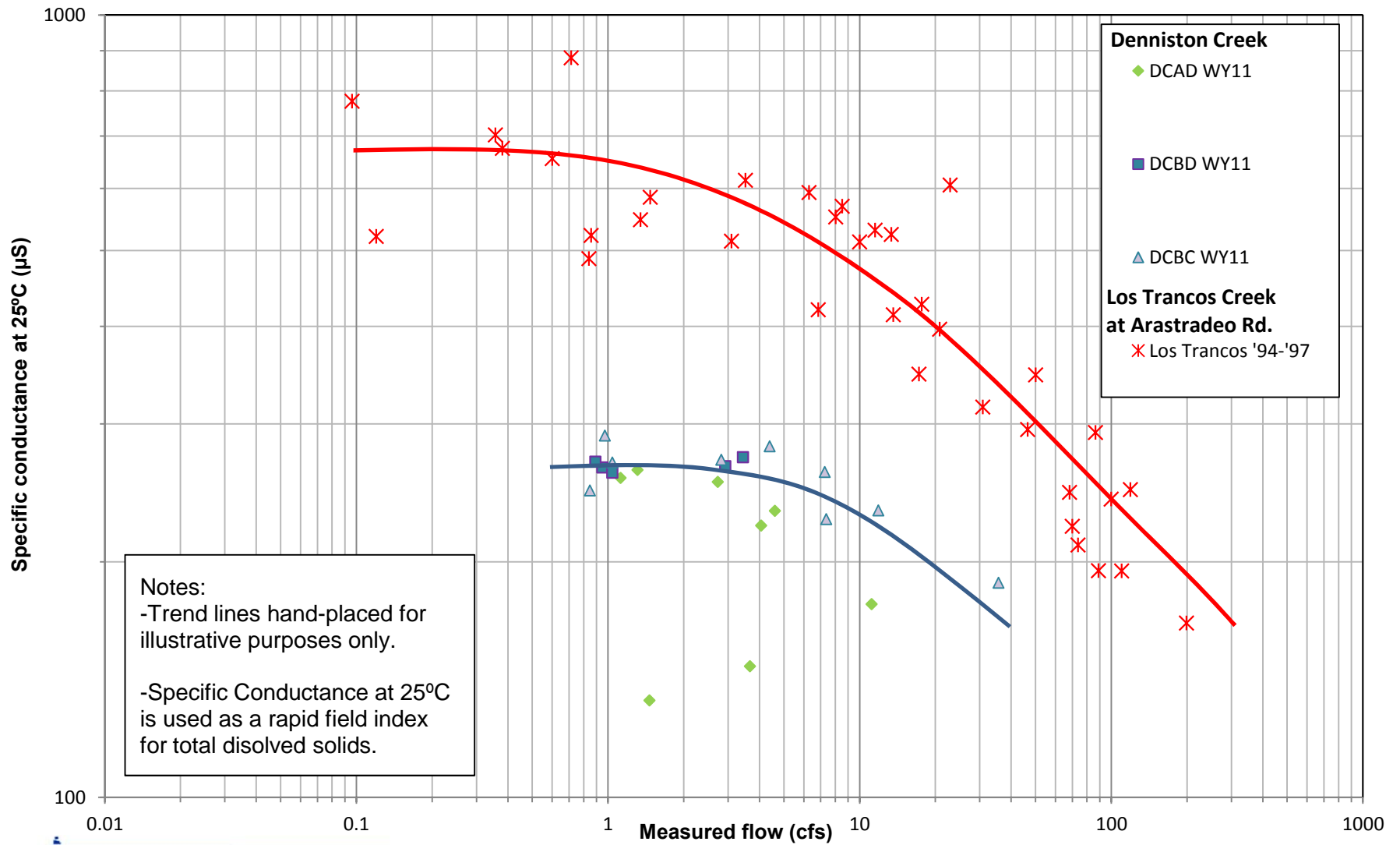
Source:

USGS Professional Paper 1434.



**Figure 5. Effects of geology: Comparison of bedload-sediment discharge in the San Vicente Creek watershed to other Bay Area streams.** San Vicente Creek data from water year 2011, all other data is from water year 2000.





**Figure 6.** Water year 2011 specific conductance at 25°C measurements relative to measured flow on the three Denniston Creek gaging stations, San Mateo County, California, compared to water year 2011 specific conductance at 25°C measurements relative to measured flow on Los Trancos Creek, at Arastradero Road in Portola Valley.

At equivalent flows, Denniston Creek carries about 40% of the mineral load of a nearby stream with similar rainfall, relief, and drainage area/size.





# **APPENDIX F**

---

*FRAHM REPORT*

# AGRICULTURAL WATER USE SAN VICENTE / DENNISTON CREEKS

## Agricultural Water Use Cabrillo Farms

10/12/2011

*The following information was developed from conversations with Dave Lea, owner/farmer of Cabrillo Farms and research/review of available public records.*

Cabrillo Farms is a tenant of Peninsula Open Space Trust. Cabrillo Farms is owned and has been operated by the Lea family since the 1950's. Prior to the Lea family, this ground was farmed by other tenant farmers dating back to the early 1900's.

Decades ago, this vicinity supported a greater area of irrigated agriculture than it does today. Examples of land converted from irrigated row crops to other land uses include the residential subdivision just south of Denniston Creek and east of the Cabrillo Highway.

Currently, Cabrillo Farms irrigates approximately 185 acres. The primary crop is Brussels sprouts. This annual crop is planted in the late Spring (as transplants) and is harvested in the Fall and early winter months. The crop is irrigated using hand moved sprinklers over the course of the growing season. Irrigation typically ceases after the early season (October) rain events.

The farmed fields are a mosaic of soil types including Denison clay loam and Farallone coarse sandy loam. Both soil types are considered highly productive (very good) for artichokes and or Brussels sprouts (per the USDA Soil Survey for San Mateo County May 1961)

The sources of irrigation water for this farm are the surface waters of San Vicente Creek and Denniston Creek, both of which are perennial streams which flow thru or are adjacent to this farm. Water rights and water use are based on a combination of 2 Water Licenses (appropriative rights) and 3 reported Statements of Diversion and Use (riparian claim).

There are two methods of diversion into the farmed fields;

1. Water is pumped from the stream at a relatively low rate, into off-stream ponds. From the ponds, the water is pumped at a higher flow rate and at higher pressure, directly into the irrigation system and applied onto the fields or,
2. Water is pumped directly from the creek (at an in-stream pond site) into the irrigation system and onto the fields.

These methods of surface water diversion into the irrigation system have remained relatively unchanged since the early 1900's.

There is a reduced demand on the surface waters today, relative to earlier times. The combination of fewer irrigated acres demanding irrigation water (compared to the time

## AGRICULTURAL WATER USE SAN VICENTE / DENNISTON CREEKS

prior to land use conversion), improved irrigation delivery systems (including irrigation system evaluations which led to better Distribution Uniformity of irrigation water and higher efficiency pumps and line pressure) as well as the development and propagation of varieties of Brussels sprouts which demand less water compared to earlier varieties, has resulted in a reduced demand from irrigation water sources.

For water budget purposes, Cabrillo Farms expects to use 1.5' of water per acre of Brussels sprouts (the equivalent of 488,775 gallons per acre) over the course of the growing / irrigation season (a total water budget of 185 ac. x 1.5 = 277.5 ac ft of water).

Water use and irrigation demand varies slightly each year based on summer weather conditions. For example, during cool, foggy summers, water demand may be reduced.

Water rights and water use are based on a combination of 2 Water Licenses (appropriative rights) and 3 reported Statements of Diversion and Use (riparian claim). *(There are additional water rights permits pertaining to this farm which are "active" according to the State Bd web-site, but are either un-used or un-constructed and are not a part of this report)*

Water use reports have been filed by or on behalf of Cabrillo Farms (by the land-owner POST and preceding POST ownership, by previous absentee land owners) for both Licenses and for the 3 Statements of Diversion and Use.

A summary of the Licenses and Statements follows;

### **License # 11983 – winter diversion of San Vicente Creek waters to storage pond #1 (Appropriative right)**

- Current owner; POST
- July 18, 1984, License to Appropriate (store) water 49 ac ft
- Location of point of diversion and re-diversion shown on the State Board web site.
- Note; Maximum storage per year is 49 ac ft, but maximum withdrawal in any year is 41 ac ft (implying that dam must not be drained.)
- Point of diversion is located on San Vicente Creek
- Collection season is November 1 thru June 1
- Maximum rate of diversion is 1 cfs
- This license does to authorize collection of water to storage outside of the specified season to offset evaporation and seepage losses or for any other purpose
- Beneficial use includes; Recreation, Stock-water, Fire Protection and Irrigation
  - Includes 151 acres of irrigated acres noted "as shown on map on file with State Water Board"

### **License # 12384 – winter diversion of San Vicente Creek waters to storage pond #2 (Appropriative right)**

## AGRICULTURAL WATER USE SAN VICENTE / DENNISTON CREEKS

- Current owner; POST
- July 19, 1984, License to Appropriate (store) water 49 ac ft
- Location of point of diversion and re-diversion shown on the State Board web site.
- Point of diversion is the same as License 11983, but the point of re-diversion is slightly different – perhaps intending to be the second “San Vicente Reservoir”.
- Note; Maximum storage per year is 49 ac ft and maximum withdrawal is 49 ac ft (slightly different than License 11983)
- Point of diversion is located on San Vicente Creek
- Collection season is November 1 thru June 1
- Maximum rate of diversion is 1 cfs
- This license does to authorize collection of water to storage outside of the specified season to offset evaporation and seepage losses or for any other purpose
- Beneficial use includes; Recreation, Stock-water, Fire Protection and Irrigation
  - Includes 151 acres of irrigated acres noted “as shown on map on file with State Water Board”

### **Statement of Diversion and Use # S009376 – diversion from Denniston Creek (Denniston Canyon field) (Riparian right)**

- Current owner; POST
- Original months of use shown as May thru Oct
- Diversion rate shown on State Bd website is 0.75 cfs
- Right of claim; Riparian
- Point of Diversion is on creek, up the canyon adjacent to production fields (based on web site location).
- Status shown as “Active” on the State Board Web Site

### **Statement of Diversion and Use # S009375 – diversion from Denniston Creek (from Denniston Reservoir) (Riparian right)**

- Current owner; POST
- Original months of use shown as May thru Oct
- Diversion rate shown on State Bd website is 1 cfs
- Original point of use is 200 acres of sprouts
- Originally listed as maximum use 300 ac ft to minimum use of 150 ac ft.
- Right of claim; Pre 1914 and Riparian
- Point of Diversion is at the Denniston Reservoir (based on web site location).
- Status shown as “Active” on the State Board Web Site

### **Statement of Diversion and Use # S009377 – diversion from San Vicente Creek (Riparian right)**

- Current owner; POST
- Original months of use shown as March thru Oct

## AGRICULTURAL WATER USE SAN VICENTE / DENNISTON CREEKS

- Diversion rate shown on State Bd website is 1.0 cfs
- Right of claim; Riparian
- Point of Diversion is on creek – seems to be the current location
- Status shown as “Active” on the State Board Web Site

A summary of the water use and management of irrigation water follows

### Appropriative Use;

Winter Diversion; Cabrillo Farms exercises their full storage rights as described in *Licenses #11983 and #12384*. A total of 98 ac ft of water is diverted over the allowed winter diversion season of December thru June 1, from San Vicente Creek. Two storage ponds, each having a storage capacity of 49 ac ft (Upper and Lower San Vicente Ponds) are filled with water directed along a gravity flume and pipe system from San Vicente Creek to Pond #1 and passed thru by gravity to Pond #2. Of that 98 ac ft of water, only 90 ac ft is available for use each year (License #11983 requires a “reserve” of 8 ac ft of water to remain in the pond).

The two licenses share a common point of diversion. Each license allows up to 1 cfs diversion rate (for a combined allowed diversion rate of 2 cfs from San Vicente Creek for winter diversion). Because of the gravity system, the actual diversion rate is much less, but at a continuous flow. According to filed water use reports and per conversations with the farmer, this actual combined diversion rate from this point of winter diversion is less than 0.5 cfs.

The stored water is held until the irrigation season and then pumped thru the irrigation system, onto the fields.

This diversion of San Vicente Creek winter flow is the only winter diversion employed by Cabrillo Farms. No irrigation occurs during the winter months. There is no diversion of water from Denniston Creek during the winter. There are no other off-stream appropriative storage ponds currently constructed or employed by or on Cabrillo Farms

Because the water budget for Cabrillo Farms utilizes 278 ac ft of water and the combination of the two licenses can only provide 90 ac ft to the fields per year, an additional 188 ac ft must be developed. This is accomplished thru direct diversion and use as described and reported on Statements # S009376, # S009375 and # S009377. A summary of those 3 Statements follows;

### Riparian Use;

*Statement of Diversion and Use # S009376:* This Statement describes a direct diversion from Denniston Creek. It functions to serve a 21 acre production field known as the Canyon Field which lies ¼ mile upstream of the Denniston Reservoir site. This is a

## AGRICULTURAL WATER USE SAN VICENTE / DENNISTON CREEKS

riparian use. There is no appropriative storage. Water is diverted / pumped from Denniston Creek into a small (2 or 3 ac ft) “regulating” pond located in the production field. From this pond, the water is pumped at a higher volume and pressure into the irrigation system and onto the 21 acre Brussels sprouts field. The diversion rate according to the State Bd site is up to 0.75 cfs. over a season of May thru October (equating with the irrigation season). The actual rate of diversion according to the farmer, the reports and extrapolated use is substantially less. The water budget for this field is 30 ac ft of water. According to reports, approximately 5 ac ft per month during the irrigation season is demanded at a rate of approximately 60,000 gpd.

*Statement of Diversion and Use # S009375:* This Statement describes a direct diversion from Denniston Creek. The point of diversion is at the Denniston Reservoir. This is a riparian use. Water is pumped from the Reservoir diversion point, directly into the irrigation system and onto the fields during the irrigations season. The diversion rate according to the State Bd site is up to 1.0 cfs. over a season of May thru October (equating with the irrigation season). The actual rate of diversion according to the farmer, the reports and extrapolated use is substantially less. Approximately 79 ac ft of water is demanded over the irrigation season from this point of diversion.

*Statement of Diversion and Use #S009377:* This Statement describes a direct diversion from San Vicente Creek. The point of diversion is the same point as used in Licenses #11983 and #12384. The system of diversion and delivery is also the same as described for the Licenses above. Water is taken from the stream by gravity feed along flumes and pipes, delivered and temporarily held in a pond. Water is then pumped at a high volume, higher pressure from the pond, into the irrigation system and onto the fields. In this case, the pond is acting as a regulating irrigation pond, not as storage. The diversion rate according to the State Bd site is up to 1.0 cfs. The actual rate of diversion according to the farmer, the reports and extrapolated use is substantially less. Approximately 79 ac ft of water is demanded over the irrigation season from this point of diversion which is delivered by gravity to the regulating ponds at a diversion rate less than 0.25 cfs.

### Summary;

- Irrigated Acres; 185
- Water used; 1.5 ac ft / ac
- Winter Diversion is from San Vicente only
- Winter Diversion; 98 ac ft. – 8 ac ft must be left in reserve
- Summer Diversion is reported from three diversion points and includes diversions from Denniston Creek and San Vicente Creek
- Summer Diversion (combined from 2 creeks); 188 ac ft.

# **APPENDIX G**

---

2013 BALANCE HYDROLOGICS REPORT



**Estimated long-term unimpaired flow for  
San Vicente and Denniston Creek,  
Coastal San Mateo County, California**

Report prepared for:  
Coastside County Water District

Prepared by:  
Scott Brown  
Eric Donaldson  
Barry Hecht

Balance Hydrologics, Inc.

November 2013

A report prepared for:

**Mr. David Dickson**  
General Manager  
Coastside County Water District  
766 Main Street; Half Moon Bay, CA 94019  
(650) 726-4405  
*DDickson@coastsidewater.org*

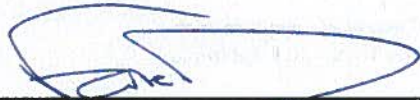
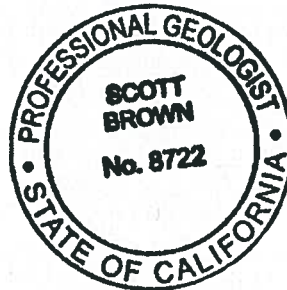
**Estimated long-term unimpaired flow for San Vicente and Denniston Creek,  
coastal San Mateo County, California**

Balance Project Assignment No. 212161

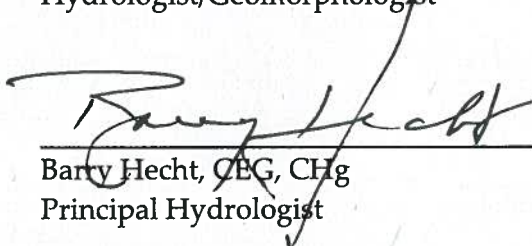
by:



Scott Brown, PG  
Geomorphologist/ Hydrologist



Eric Donaldson  
Hydrologist/Geomorphologist



Barry Hecht, CEG, CHG  
Principal Hydrologist



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Hydrologics, Inc.®**

©2013 Balance Hydrologics, Inc.  
800 Bancroft Way, Suite 101  
Berkeley, California 94710  
(510) 704-1000 x204  
*office@balancehydro.com*

November 27, 2013

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## 1. INTRODUCTION

### 1.1 Background and purpose

The Coastside County Water District (CCWD) is currently developing an Environmental Impact Report (EIR) for applications to divert from Denniston and San Vicente Creeks in coastal San Mateo County.<sup>1</sup> The following report summarizes our work to estimate unimpaired flow for the two streams over a sequence of years within the climatic variability typical of the region.

The unimpaired flow analyses discussed herein, with consideration of watershed geology, suggest that flows in these two streams are not typical when compared with most other coastal California streams, having a much more modulated hydrograph and baseflows that are both higher and extend further into the dry season than would be expected in more 'normal' watersheds. Ultimately, this difference is a direct consequence of the high recharge capacity of the fractured granitic bedrock present within the upper Denniston and San Vicente watersheds, a characteristic that is summarized below and discussed in greater detail by Hecht and others (2012).

---

<sup>1</sup> A larger stream in coastal Santa Cruz County is also named San Vicente Creek, a very common source of confusion. The Santa Cruz County stream has a very different resource base.

## 2. GEOLOGIC AND HYDROLOGIC SETTING

The portion of San Mateo County between the San Andreas and San Gregorio fault zones has been repeatedly fractured and raised under constant pressure for at least the past 22 million years. The protracted pressure has lifted Montara Mountain to elevations approaching 2,500 feet above present sea level only a mile or two east of the coastline. Tectonism and the chemical attack of the coastal zone have resulted in universal deep weathering of the granitic rocks. Salt spray and exposure also inhibit growth of the hardwood or conifer woodlands which elsewhere have grown on similar soils receiving the same 30 to 40 inches of mean annual precipitation prevailing along this coast, which supports luxuriant coastal scrub, intermittently broken with patches of trees. A precipitation map of the coast (Figure 1) also shows the location of the San Vicente and Denniston watershed, as well as catchments used in analyses later in this report.

The tectonic, chemical, and glacioeustatic fluctuations over the millions of years have weathered the granitic rocks into standing sand. When eroded, the sand fills valleys and streams. Rainfall can fill the sands – on the slopes, in the valleys, and anywhere they accumulate. Sufficient infiltration occurs that the hydrology of the watersheds draining the mountain is intrinsically different from that of other Pacific Plate (west of the San Andreas fault) watersheds, and even more different than the Franciscan-type watersheds east of the fault. These “Montara-type” watersheds function with lower peak runoff and higher baseflows. These differences are discussed in detail by Hecht and others (2012), and are best summarized by a comparison of stream gage records from various types of coastal streams (presented here as Figure 2).

The fractured granitic geology supports high recharge – especially during wet years – and groundwater storage supports higher baseflows later into the summer and even carrying over into subsequent years following wet and very wet years (Brown and others, 2011; Brown and others, 2004). The coastal scrub draws less water in summer than the forests on weathered granitics elsewhere in the Coast Ranges. Dry-season flows in Montara-type streams are not only larger but tend to lag seasonally compared to more typical small coastal streams. We recognize these differences and partially incorporated them in the modeled estimates described below.

### 3. UNIMPAIRED FLOW MODEL

Our primary goal for this project was to develop a flow correlation model to summarize monthly unimpaired flow at the 'Above Diversion' stream gage stations on Denniston and San Vicente Creeks. This section describes the methods used to develop the correlation.

#### 3.1 Selection of long-term streamflow record

Several different streamflow records were considered for our correlation analysis, looking for a stream that best provides a good correlation with minimal gaps or potential for errors in the long-term record, as well as the potential for the index stream to successfully incorporate prominent hydrologic characteristics of Denniston and San Vicente Creeks (i.e., seasonal lag; the influence of wet and very-wet years on flow in subsequent years or 'carry-over' effects). The results of our preliminary correlation tests for each stream are discussed below. Table 1 presents a summary of each creek's characteristics as they relate to potential correlation to Denniston and San Vicente Creeks.

##### 3.1.1 San Geronimo

The quality and continuity of the flow record for the 32-year daily streamflow record for San Geronimo Creek, a tributary of Lagunitas Creek in western Marin County, made it a good candidate for correlation, despite the distance from Denniston and San Vicente Creeks. Additionally, it is the only nearby unregulated watershed of similar size, and is familiar to many watershed scientists because of the importance of the Lagunitas Creek salmonid runs. Our analysis of the WY2010 to WY2012 data showed that in-season variability (between the correlated streams) is greater than the variability between different year types (WY2011 and WY2012 were wet and dry years, respectively), resulting in difficulty in properly accounting for carry-over effects. We decided that other streams may provide a better correlation to reduce the in-season variability.



### 3.1.2 Pine Creek

The Pine Creek correlation provided much less seasonal scatter than did the San Geronimo correlation. The watershed is closer in size to Denniston and San Vicente Creeks than several others considered (Pescadero, Pilarcitos, and San Gregorio), and there is no known flow diversion or regulation in the watershed. Past analyses (Brown and others, 2011 and 2004) suggest that Pine Creek exhibits sustained carry-over effects after wet years, a result of the weathered granitic geology within the watershed similar to that of the Montara streams. Seasonally, the stream dries faster than San Vicente and Denniston Creeks, but the correlation trends seemed consistent enough to provide reliable results.

When we first built the correlation model for this stream, the WY12 streamflow records for Pine Creek were not available for the correlation. After receiving the WY12 data, we ran our Pine Creek correlation model and found that the model was significantly under-predicting flows in San Vicente and Denniston Creeks for WY2012. We suspect that variation in storm patterns, especially in such a dry year, is the primary reason for this error. Thus we concluded that while the Pine Creek correlation model provides a minimum estimate of available flow in San Vicente and Denniston Creeks, an alternate model should be considered.

### 3.1.3 Pilarcitos Creek

The Pilarcitos Creek correlation provided somewhat less in-season variation and a scatter similar to that of other mid-coast USGS records. However, we have concerns over the reliability of the correlation over the long-term due to the presence of two dams upstream of the gage, and variations in the amount of diversions and exported water associated with these dams. In addition, variation in low-flow releases (for habitat) and high-flow releases (for dam safety) from Pilarcitos Lake reduce the reliability of the correlation over the long-term.

### 3.1.4 San Gregorio Creek

The San Gregorio Creek watershed also has a number of diversions and impoundments, though none are as large as Pilarcitos Lake. Though the record spans 42 years, there are some significant gaps in the record (1994-2001; 2006-2007), which encompass many wet and very wet years. These gaps may skew the correlation, so we opted to use a different stream for our correlation analysis.

### 3.1.5 Pescadero Creek

Similar to San Gregorio Creek, the Pescadero Creek watershed has a complex set of diversions and regulation, albeit principally downstream of the gage. The correlation has less in-season variation than the San Geronimo record, and has a more predictive WY2012 correlation than Pine Creek. The watershed geology is different than that of San Vicente and Denniston Creeks (none of the weathered granitics, so the carry-over effects are likely not as prominent) and the watershed is larger<sup>2</sup>, but the correlation for WY2010-2012 appeared to be the most reliable of the streamflow records described above. The gaging record is essentially continuous for the past 61 years. In addition, the proximity to San Vicente and Denniston Creeks reduces the errors related to storm pattern variation (as discussed for Pine Creek). For these reasons, we chose to move forward with a Pescadero Creek correlation model.

## 3.2 **Model mechanics**

To develop the correlation model, we plotted daily streamflows for WY2010-WY2012 for Pescadero and San Vicente/Denniston creeks<sup>3</sup> on a log-log plot, and used this plot to develop a set of correlation equations for each creek (Figures 3 and 4). Because of the differences in watershed dynamics, a single logarithmic equation could not be used to adequately describe the correlation between the streams. In general, the correlation consists of a high-flow correlation equation and a lower-sloped low-flow equation<sup>4</sup>. This is a direct result of the sustained baseflows in Denniston and San Vicente Creeks relative to other stream, and is related primarily to their hydrogeology and vegetative water use.

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<sup>2</sup> We understand the potential for spurious correlations which can result from comparing two watersheds of different sizes. These watersheds can have significantly different time-lag responses to storms and different baseflow and vegetation (evapotranspiration) characteristics, which add error to the analysis. Even with these potential drawbacks, however, the Pescadero Creek streamflow record appears to produce the most reliable correlation of the various streams considered, due to the watershed's proximity to the Montara streams, the continuous record, and lack of significant impoundments in the watershed.

<sup>3</sup> We used the San Vicente and Denniston Creek records above the CCWD points-of-diversion. There are small, summertime diversions that occur upstream of these gaging stations on both creeks. Because these diversions are reflected in the gaging records as short-duration (several hours) drops in flow, we were able to identify and remove the diversions from the gaging records by assuming that flow remains constant during the diversion (essentially removing the temporary drops in flow).

<sup>4</sup> Denniston required a third equation to connect the high- and low-flow equations. See Figure 4.

Using the correlation models for each stream, we created a synthetic 61-year record of daily streamflow. Figures 5 through 7 compare the modeled results with the gaged data for each stream over the common period-of-record.

### 3.2.1 High flows

For high flows, we selected a subset of data (Pescadero flows greater than 20 cfs for use in the San Vicente Creek correlation, for example) and fit a log-log (“power”) equation through the points. R-squared values (shown in Figures 3 and 4) are relatively high for these correlations, despite the scatter at high flows. For Denniston Creek, the high-flow data seemed to indicate a need for two separate curves, a true high-flow equation when Pescadero Creek flows are above 20 cfs, and a mid-flow curve to connect the high-flow to the low-flow curve (see Figure 4).

### 3.2.2 Low flows

Low flows appear to have a more systematic variable correlation, which we attribute to variations in the expression of recharge in wet years supporting higher flows in San Vicente and Denniston Creeks relative to Pescadero. For each stream, the WY2010 and WY2012 data generally plotted along the same correlation (see exception in 3.2.2.1 below, however), but the WY2011 low-flows plotted higher for San Vicente and Denniston Creeks relative to Pescadero. We attribute this higher correlation to the greater recharge that occurs in the granitic watersheds during wet years<sup>5</sup>, supporting relatively higher baseflows in such years. We established two curves for each creek – a lower curve for average and drier-than-average years, and an upper curve for wet years (greater than or equal to 120% of average rainfall). For years between 100% and 120% of average rainfall, we used a variable curve (with the low-flow equation multiplier indexed to percent rainfall) that falls between the two curves described above. To avoid artificial jumps between year-types, we developed a protocol within the model to gradually transition between the low-flow curves over the course of the water year<sup>6</sup>.

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<sup>5</sup> Rainfall in WY2011 was approximately 125% of long-term average rainfall at Half Moon Bay.

<sup>6</sup> The transition occurs between November 1 (presuming that little rain typically falls in October) and March 1 (the point at which most rainfall in a given year has typically fallen) when progressing from a drier to a wetter year; and from October 1 through December 1 when progressing from a wetter year to a drier year (based on observations during WY2011 into WY2012).

### 3.2.2.1 *San Vicente carry-over flow*

Despite the fact that WY2012 was a drier year than WY2010, the WY2012 (75% of average rainfall) San Vicente correlation was slightly higher than that of WY2010 (an average year). We suspect that WY2012 flows may have experienced greater carry-over effects relative to Pescadero Creek from the wet WY2011, as has been described for other granitic watersheds (Brown and others, 2011). To account for this artifact, the San Vicente model calculates the low-flow equation in years following wet years (120% rainfall or greater) by averaging the previous year's multiplier<sup>7</sup> with the current year's multiplier as calculated solely by the current year precipitation.

The WY2010 and WY2012 data for Denniston Creek were not distinguishable, so we did not incorporate carry-over in the Denniston Creek correlation model. This is not to say that carry-over doesn't occur in Denniston Creek. Carry-over may occur at a higher percent rainfall, or may have been masked by slight errors within the gaging record. In this case, not incorporating carry-over where it has not (yet) been identified is the conservative assumption, in that it will result in a slightly lower long-term unimpaired flow.

## 3.3 Model results

Table 2 reports the long-term mean monthly flow for San Vicente and Denniston Creeks for various year types: normal, dry, and wet. Figures 8-9 provide graphic depictions of the available unimpaired flow for each of the various year types (San Vicente and Denniston Creeks, respectively).

## 3.4 Comparison to other analyses

This section compares the results of the Pescadero correlation to the results of other analyses that we conducted as part of the development and testing of the current analysis. This comparison is presented as a quality check on the models to identify very large differences that may be the result of systematic modeling errors, and also to provide a sense of how conclusions based on past modeling might change in comparison to the current modeling effort.

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<sup>7</sup> The low-flow equation is a power function with the form  $Q_{sv} = A * Q_{pesc}^z$ ; where  $Q_{sv}$  and  $Q_{pesc}$  are daily flow at San Vicente and Pescadero, respectively;  $A$  is the multiplier (indexed to % rainfall); and  $z$  is the exponent.

### 3.4.1 San Geronimo Creek

We compared the long-term average flow volumes (annual and diversion season) summarized from our preliminary correlation to San Geronimo Creek to similar metrics using the Pescadero correlation model to assess the differences between the models (Table 3). For San Vicente, the Pescadero model provided slightly higher long-term averages than the San Geronimo analysis, but well within the probable error for either model. For Denniston Creek, the Pescadero correlation model provided much lower prediction of long-term average flow than the San Geronimo analysis – lower by about 15-20 percent. This appears to be the result of poor calibration within the high-flow range, as slight changes in the slope of the high-flow curve could potentially skew the results. Additional refinement of the Pescadero correlation model may be warranted, especially following a very wet year.

### 3.4.2 Pine Creek

We compared the results of the 61-year Pescadero correlation model to preliminary results obtained through our initial correlation model developed based on the 20-year Pine Creek record. The models show similar results for early- and late-season flows, but the Pine Creek model generally predicts lower flows during the diversion season (Appendix A), especially early in the season. As discussed in section 3.1.2, we expect that the Pine Creek correlation provides a lower-bound estimate of available flow, and this is consistent with the findings relative to the Pescadero correlation model.

### 3.4.3 Other Pescadero periods

As a check to see if the differences between the Pescadero and Pine Creek models are due to sample size (61 versus 20 years), we calculated average monthly flows for 1992 to 2012 for the Pescadero model to compare against the Pine Creek model over the same period of record.<sup>8</sup> Results are shown in Appendix A. The Pescadero model results vary depending on the period of record, but the 61- and 20-year Pescadero numbers still generally show the same trend relative to the Pine Creek model. The biggest difference between the two models is for very wet years, though this is expected given how few years were used to calculate this average (1 year in the 20-year model, 3 years in the 61-year model).

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<sup>8</sup> 1992 was selected primarily because it was the first year of gaging on Pine Creek. It does, though, provide a meaningful starting point free of the effects of a very wet period in the early 1980s followed by the five-year drought of water years 1987 through 1991.

Similarly, we compared the averages of a 31-year record (1980-2011) on Pescadero Creek for comparison to the San Geronimo-derived averages (Table 3). This provides a check as to whether the differences identified are primarily due to systematic differences in the model, or simply because of the different periods-of-record considered in the different analyses.

#### 4. CONCLUSIONS

- Denniston and San Vicente Creeks have an annual hydrograph that is more muted and seasonally persistent than many other small coastal streams. Storm peaks are relatively low, while storm recession flows and spring/summer baseflow remain high for longer time periods.
- The 61-year daily flow record for Pescadero Creek provided the most robust correlation for estimating long-term unimpaired flow for Denniston and San Vicente Creeks.
- The 61-year flow correlation model described herein is appropriate for an EIR-level analysis. As more information becomes available, we may consider recommending a more detailed model that would allow additional flexibility in assessing diversion scenarios and/or alternatives.



## 5. LIMITATIONS

This report is based on gaging data which are preliminary and subject to review, and which have been collected over relatively short time span for San Vicente and Dennison Creeks. Because of the limited overlap between those creeks and the Pescadero Creek record, the full range of hydrologic conditions is not necessarily represented in the correlation. Though we used the correlation to project water availability under a broad range of conditions, it should be noted that the correlation is poorly constrained for very-wet years and very-dry years. With these cautions, use of these conforms with the normal standard of care in the region for reports of this type; while Balance staff welcome observations of others which may improve the primary record or bases for inferences, use of the data and conclusions may lead to an understanding of the watershed far superior to conventional extrapolation of regional rules of thumb not calibrated to conditions within these catchments.

Observations and data from others are most welcomed, and may be included (with attribution) in future versions of this and related documents. Either the authors or CCWD may be contacted with submittals of this type.

## 6. REFERENCES

- Baggett and Hecht, 2011, Bases of flow correlation to incorporate lagged, persistent flows in San Vicente Creek. Technical Memorandum by Balance Hydrologics to Pete Bontadelli, Ben Barker, Jim Steele, and Laura Burris, 6p.
- Brown, S., Woyshner, M., and Hecht, B., 2011, Stream baseflow persistence in watersheds supported by granitic/jointed-granular aquifers: Presentation to the Salmonid Restoration Federation 2011 Annual conference, San Luis Obispo, CA. 28 slides.
- Brown, S., Woyshner, M.R., and Hecht, B., 2004, Sources and pathways of ground-water flow to granitic canyon streams as inferred from variations in dry season baseflow, Carmel River watershed, California: Proceedings of the 13th Annual Groundwater Resources Association Meeting, September 23-24, 2004.
- Hecht, B., Donaldson, E., and Krause, A.J., 2012, Bases for hydrologic analysis of Montara-type watersheds; San Vicente and Denniston Creeks, Moss Beach and Princeton areas, Coastside San Mateo County, California. Report prepared by Balance Hydrologics, Inc. for Analytical Environmental Services and Coastside County Water District, 36p.

## **TABLES**

**Table 1. Watershed characteristics for stream gages considered for the San Vicente and Denniston Creek unimpaired flow correlation analysis.**

Watershed	Gaging station	Operated by	County	Watershed area	Period of Record	Years in operation	Distance from Denniston/ San Vicente	Weathered granitic geology?	Dams present upstream of gage?	Diversions upstream of gage?	Comments
				(sq. mi.)			(miles)				
San Geronimo Creek	at Lagunitas Road Bridge	Balance Hydrologics for MMWD	Marin	8.7	1980-pres.	32	35	no	no	minimal; receives return flow from >1000 septic systems	strong seasonal shift in correlation relative to Denniston and San Vicente
San Francisquito Creek	at Stanford University	USGS	Santa Clara/San Mateo	37	1930-1941; 1950-pres.	73	17	no	Searsville Lake	yes	diversions and urbanization, resulting in poor correlation
Pine Creek	--	MPWMD	Monterey	14	1992-pres.	20	89	yes	no	no	correlation to Denniston/San Vicente is poor in dry years, likely due to distance and/or rain shadow effects
Pilarcitos Creek	at Half Moon Bay	USGS	San Mateo	27	1967-pres.	45	5	no	Pilarcitos Lake	yes	correlation suspect due to low-flow releases for habitat and high-flow releases for dam safety
San Gregorio Creek	at San Gregorio	USGS	San Mateo	51	1970-1994; 2001-2005; 2007-pres.	33	16	no	yes, but small	no	missing several wet and very-wet years in long-term record
Pescadero Creek	near Pescadero	USGS	San Mateo	46	1951-pres.	61	22	no	yes, but small	some small diversions	appears to be best compromise for good correlation, lack of impoundments/diversions, and complete record
San Vicente Creek	above Diversion	Balance Hydrologics	San Mateo	1.3	Apr. 2010-pres.	2.5	--	yes	no	some; minor (removed for correlation analysis)	--
Denniston Creek	above Diversion	Balance Hydrologics	San Mateo	3.0	Apr. 2010-pres.	2.5	--	yes	no	some; minor (removed for correlation analysis)	--

**Table 2. Summary of unimpaired flow and diversions for San Vicente and Denniston Creeks, Coastal San Mateo County, California<sup>1</sup>.** All flow values are in acre-feet. Based on correlation to Pescadero Creek in San Mateo County (WY1952 to WY2012). Year-types are characterized by percent of average annual rainfall at Half Moon Bay<sup>1</sup>.

Year Type <sup>2</sup>	Normal years (>85%; <120% annual rainfall)		Dry years (<85% annual rainfall)		Wet years (>120% annual rainfall)	
	San Vicente Creek unimpaired flow	Denniston Creek unimpaired flow	San Vicente Creek unimpaired flow	Denniston Creek unimpaired flow	San Vicente Creek unimpaired flow	Denniston Creek unimpaired flow
October	36	78	34	74	40	80
November	44	96	35	82	56	110
December	95	183	50	113	112	211
January	107	220	78	166	210	344
February	123	254	74	175	225	369
March	107	259	78	189	216	383
April	76	194	48	123	153	313
May	51	134	36	86	84	221
June	36	86	29	63	62	152
July	32	68	26	55	58	123
August	30	63	24	51	53	111
September	27	58	22	47	49	101
<b>Annual total (ac. ft.)</b>	<b>764</b>	<b>1691</b>	<b>533</b>	<b>1224</b>	<b>1319</b>	<b>2519</b>

Notes:

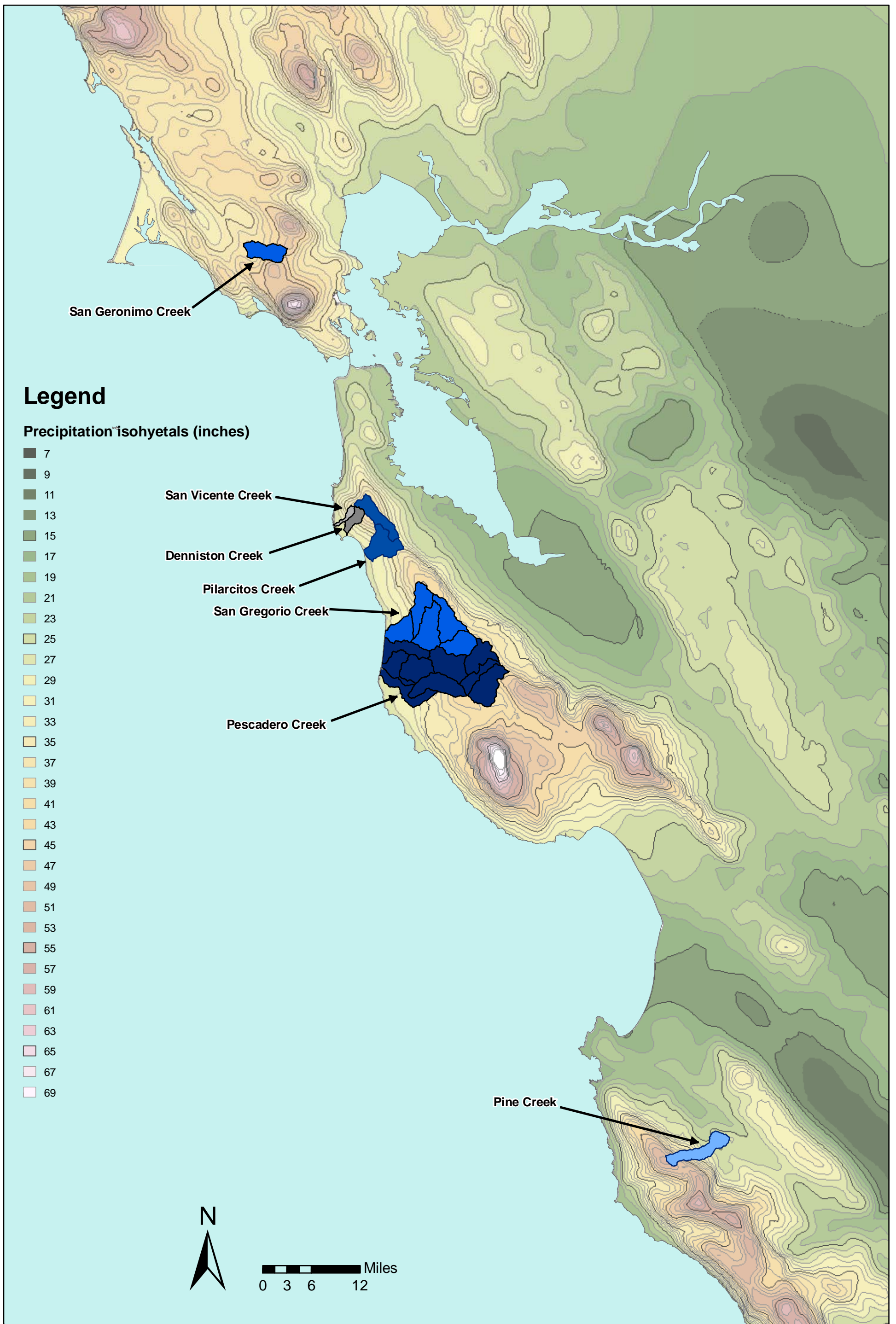
1. Annual rainfall records at Half Moon Bay were missing or incomplete for WYs 1953, 1973, 1986, and 1994; percent of average rainfall at San Jose was used as a substitute for these years.  
Percent of long-term average rainfall at MWSD's Alta Vista water treatment plant was used for WYs 2002 through 2012.
2. Normal years include WYs 1957, 1962, 1965, 1971, 1975, 1979, 1980, 1984, 1985, 1989, 1992, 1994, 1997, 1999, 2001, 2002, 2003, 2004, and 2010 (19 years).  
Dry years include WYs 1953, 1954, 1955, 1959, 1960, 1961, 1964, 1966, 1968, 1970, 1972, 1976, 1977, 1981, 1987, 1988, 1990, 1991, 2007, 2008, 2009, and 2012 (22 years).  
Wet years include WYs 1952, 1956, 1958, 1963, 1967, 1969, 1973, 1974, 1978, 1982, 1983, 1986, 1993, 1995, 1996, 1998, 2000, 2005, 2006, and 2001 (20 years).

**Table 3. Comparison of average flow volumes for San Vicente and Denniston Creeks for the San Geronimo and Pescadero correlation models.** The table summarizes the averages for the full period of record for Pescadero Creek, as well as the subset that overlaps with the period-of-record for San Geronimo Creek.

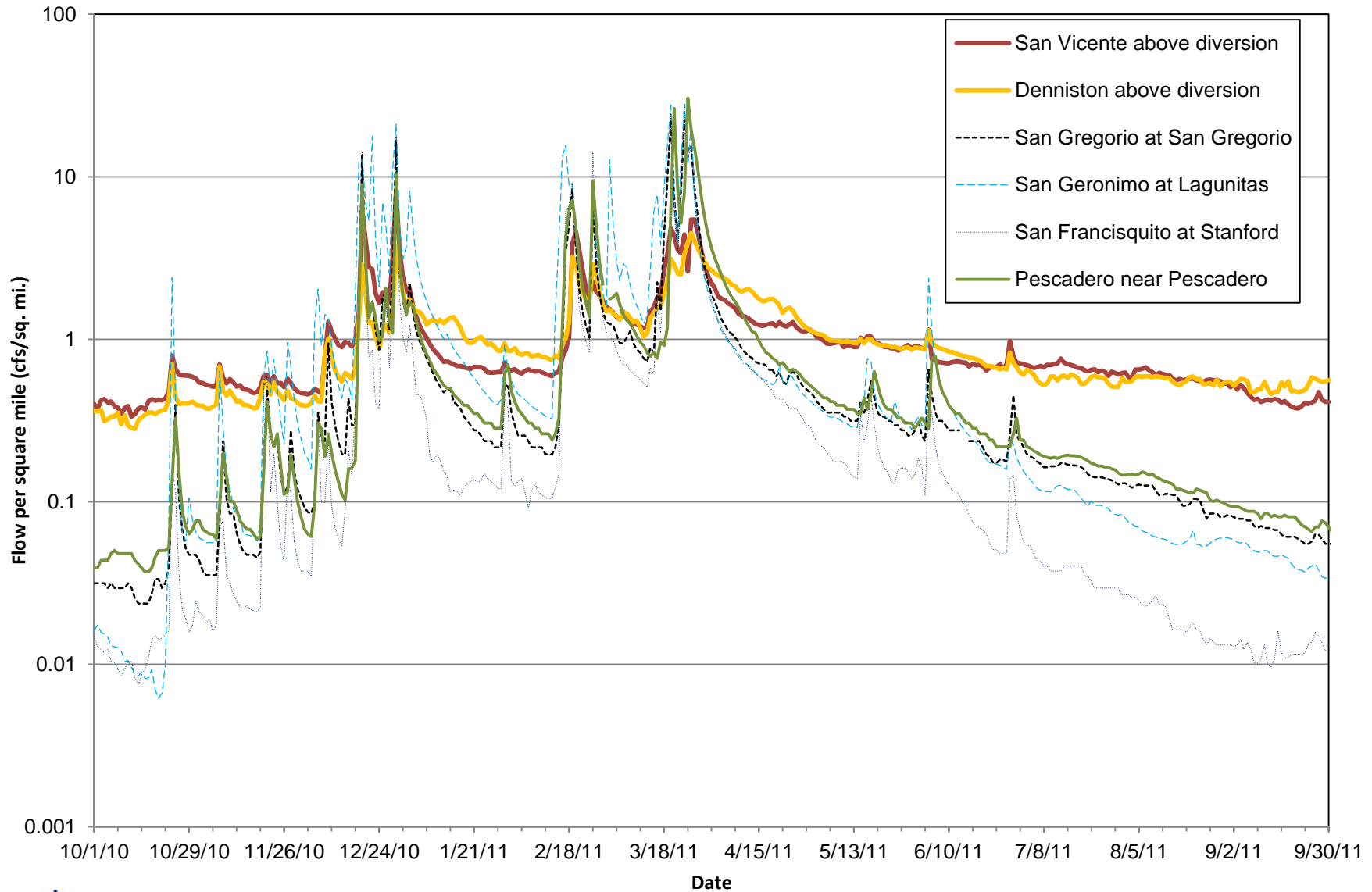
	San Vicente Creek (above diversion)			Denniston Creek (above diversion)		
	San Geronimo Correlation (1980-2011)	Pescadero correlation (1952-2012)	Pescadero correlation (1980-2011)	San Geronimo Correlation (1980-2011)	Pescadero correlation (1952-2012)	Pescadero correlation (1980-2011)
Average annual flow volume (acre-feet)	834	859	888	2056	1791	1822
Average flow volume, Dec. 15-Mar. 31 (acre-feet)	422	452	474	1126	876	892

## FIGURES



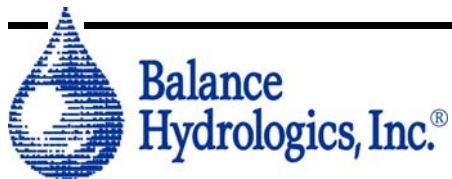
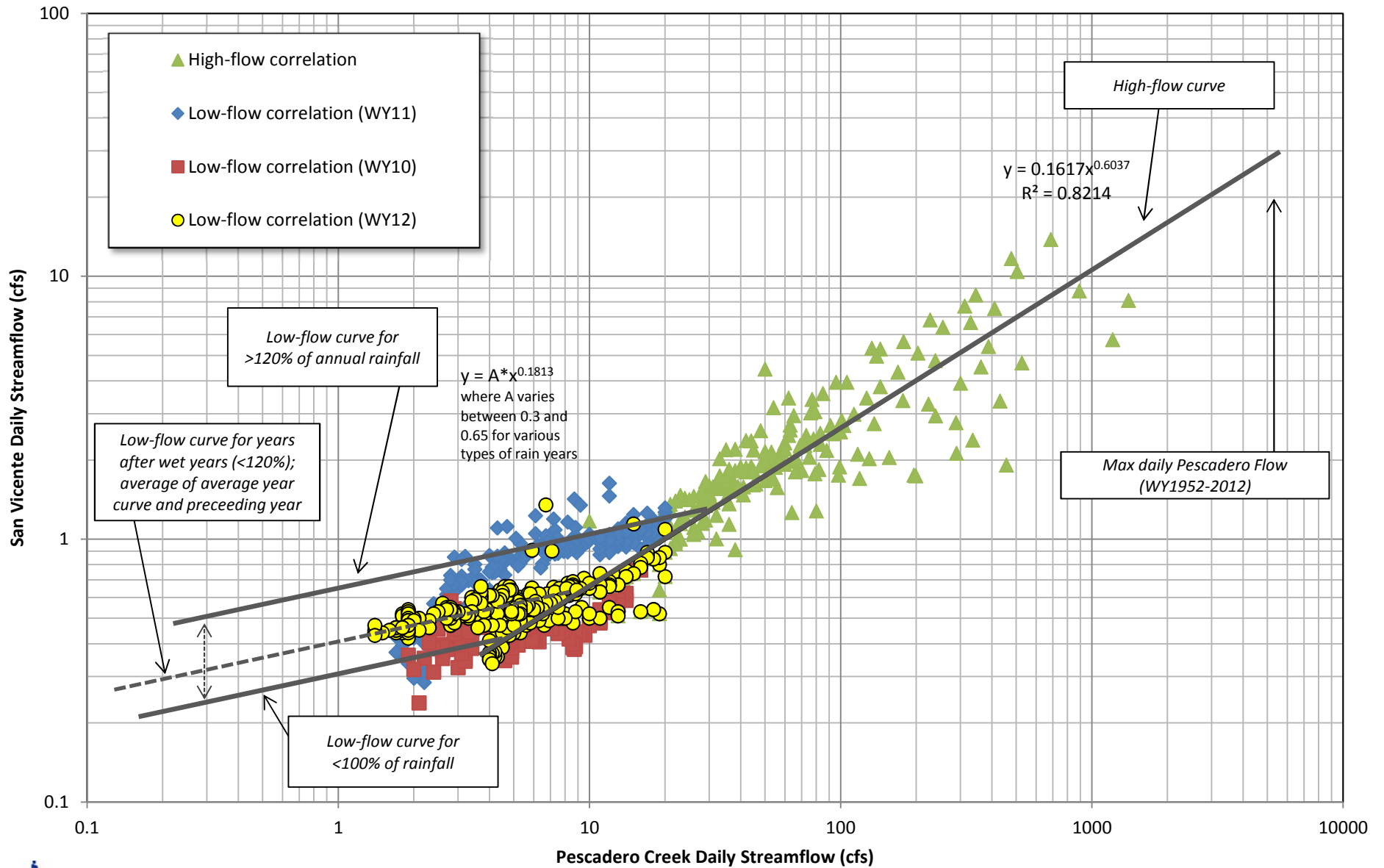


**Figure 1. Mean annual precipitation map for the San Francisco Bay Area, California. Various watersheds considered for the unimpaired flow analysis are also labeled on the map. (Shaded areas represent the entire watershed, which is not necessarily representative of the gaged portion of the watershed.)**

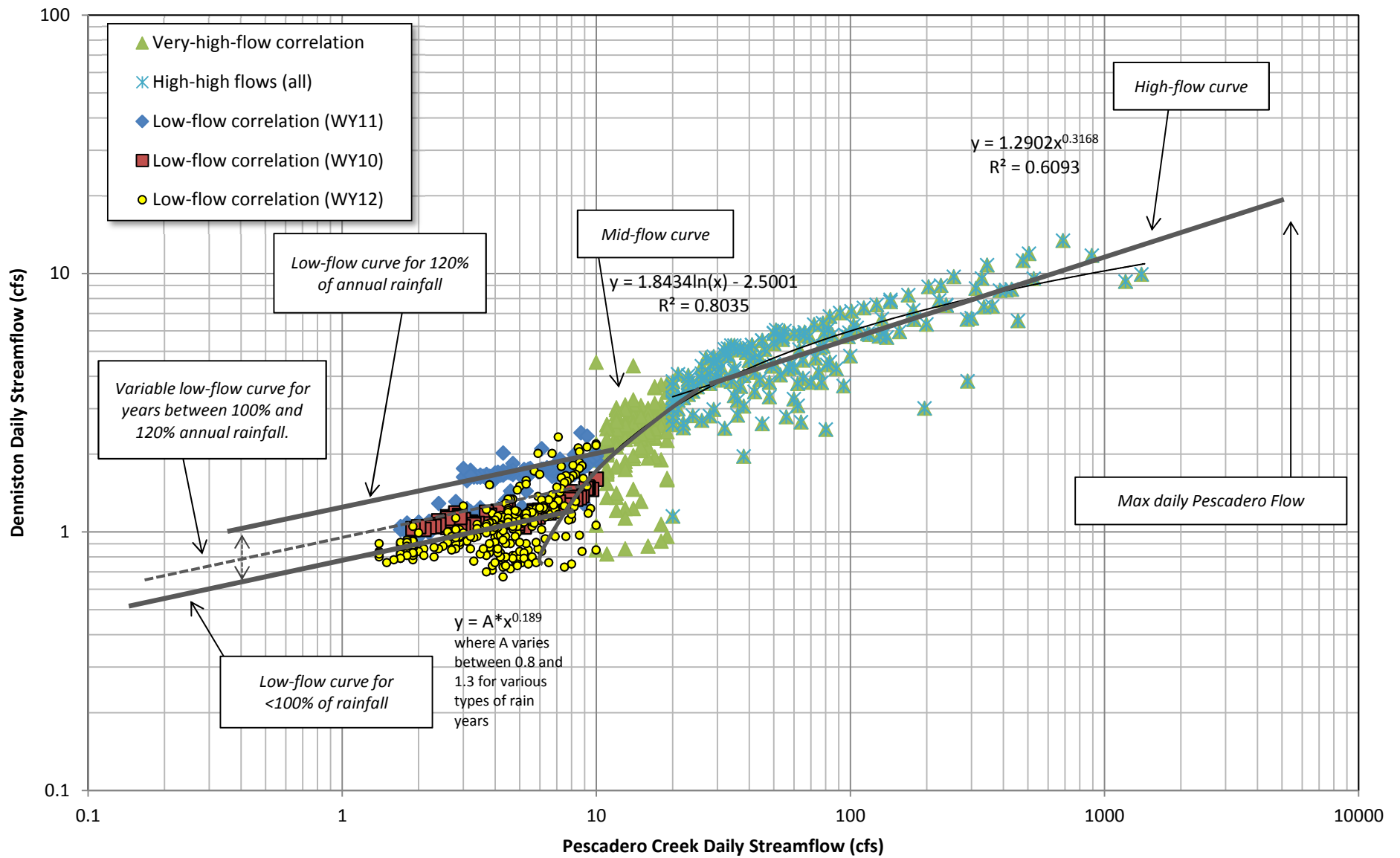


**Figure 2. Daily mean flow record per square mile for San Vicente, Denniston, Pescadero, San Gregorio, and San Geronimo Creeks.**  
 Note that the Denniston and San Vicente Creek hydrographs have low peaks and high baseflow relative to the other streams.



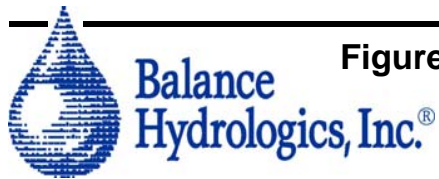
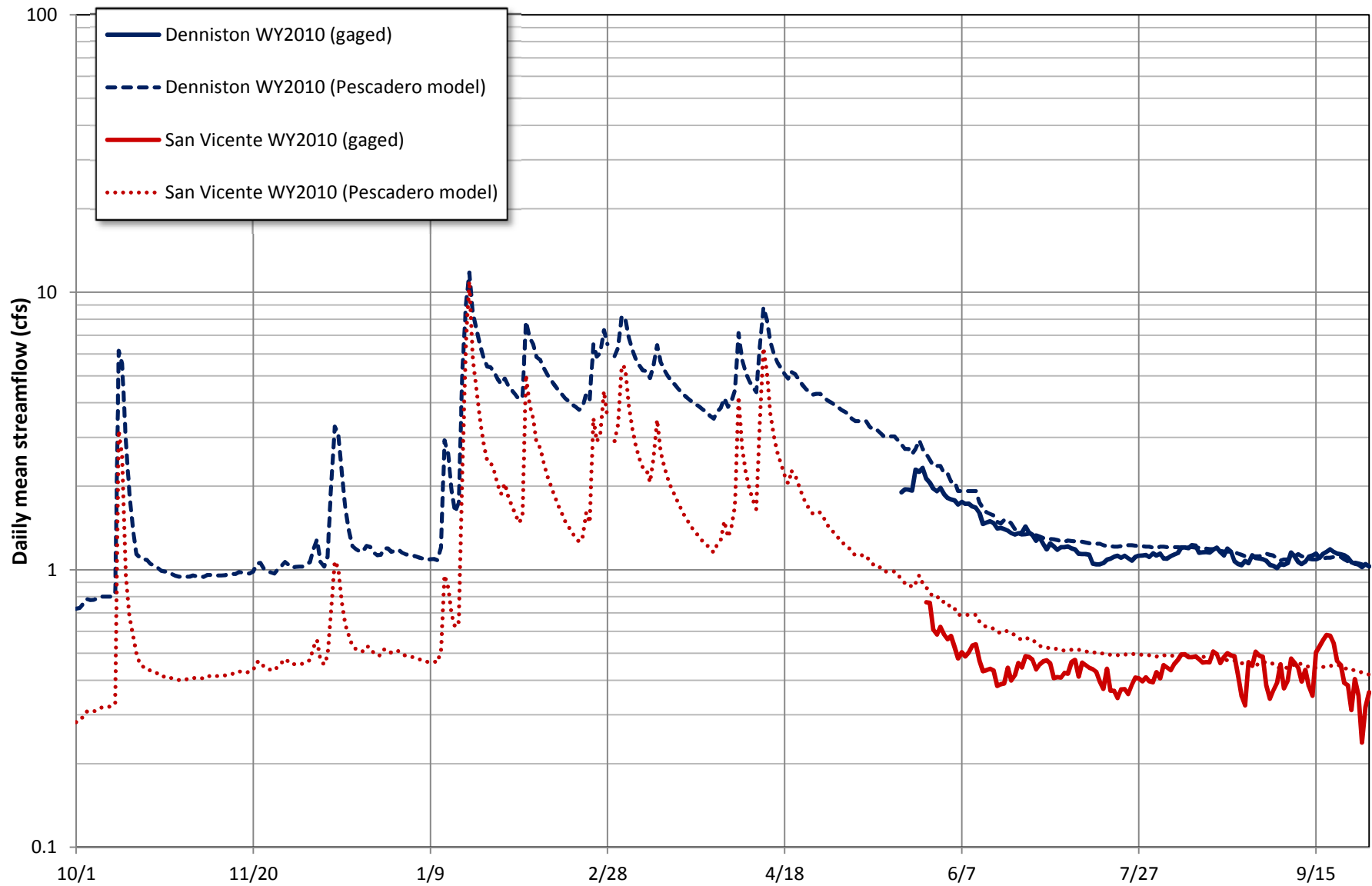


**Figure 3. Graphical representation of the San Vicente-Pescadero Creek flow correlation model.** Low-flow correlation is indexed to rain-year type (percent of mean annual precipitation). See section 3.2 in accompanying report for full discussion.

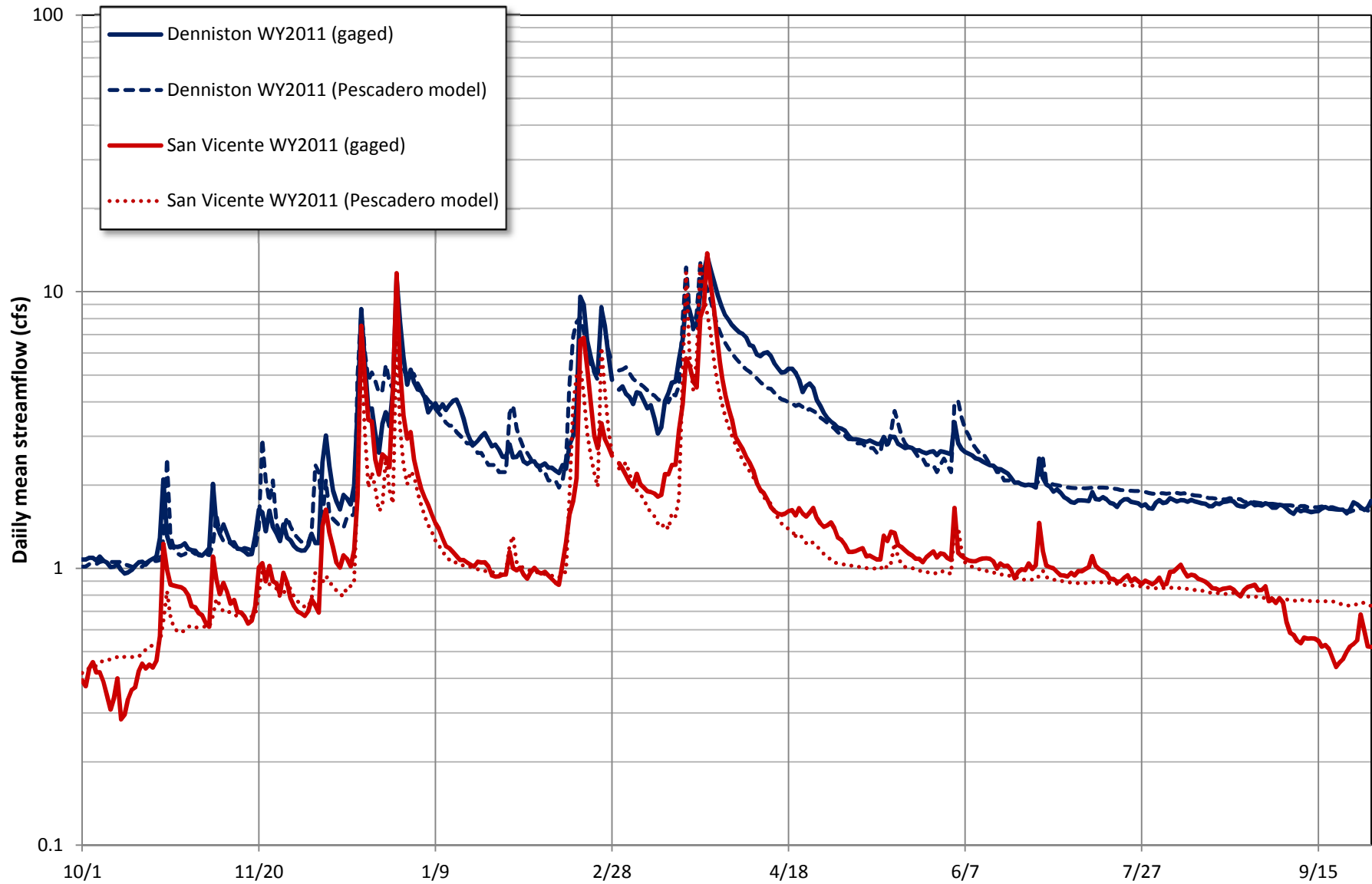


**Figure 4. Graphical representation of the Denniston-Pescadero Creek flow correlation model.** Low-flow correlation is indexed to rain-year type (percent of mean annual precipitation.) See section 3.2 in accompanying report for full discussion.

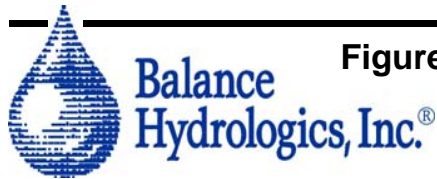


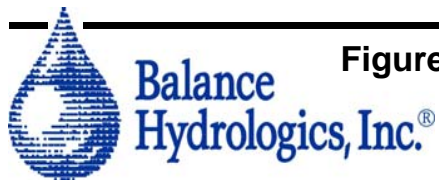
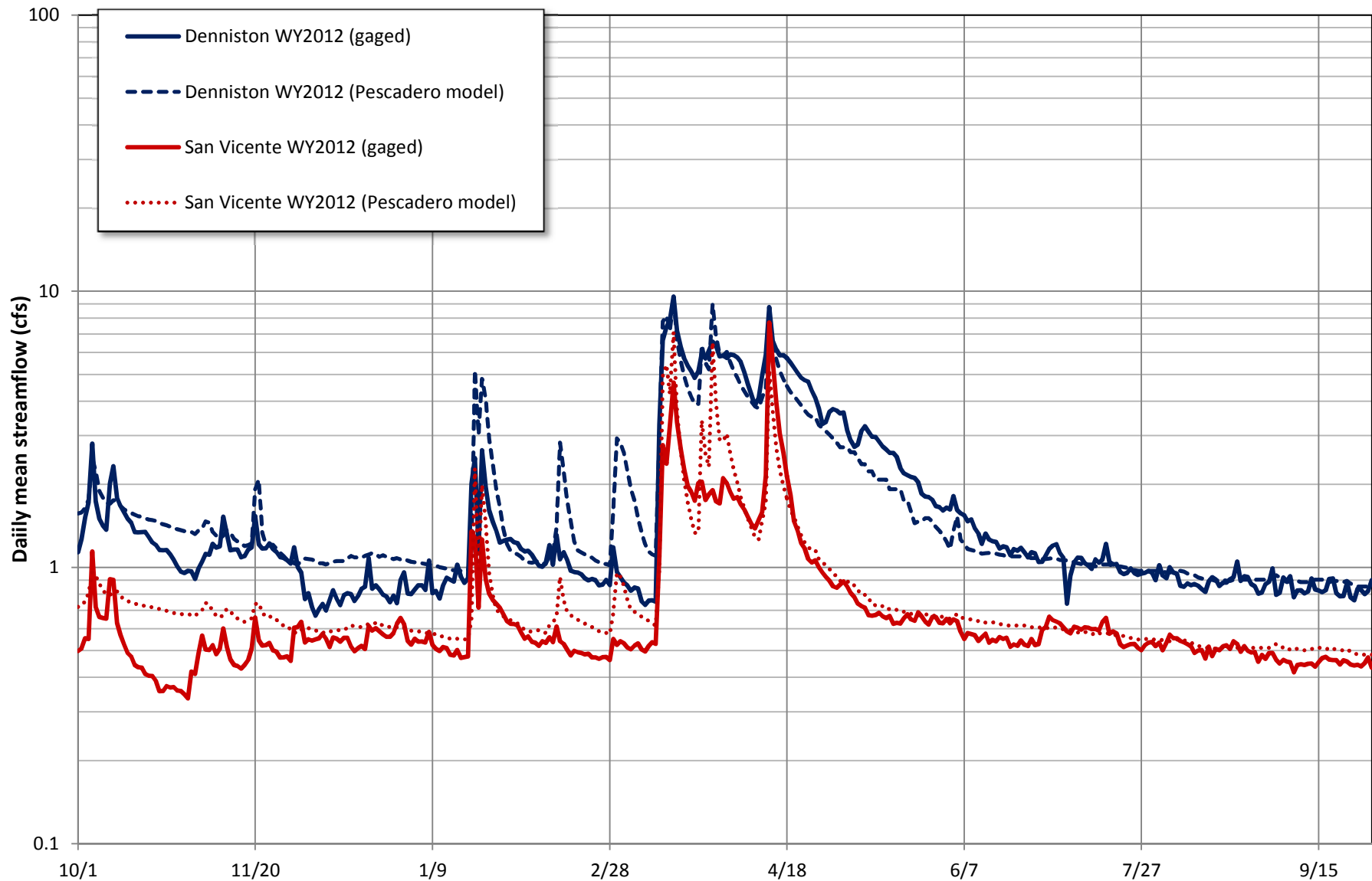


**Figure 5. Modeled versus gaged daily mean streamflow for San Vicente and Denniston Creeks, water year 2010.** Modeled flows were based on correlation to the daily streamflow record at Pescadero Creek. The correlation models were developed to estimate a long-term daily flow record for San Vicente and Denniston Creeks.



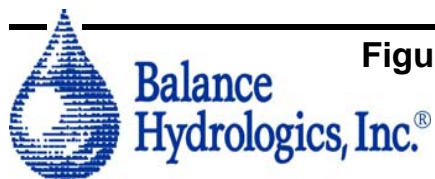
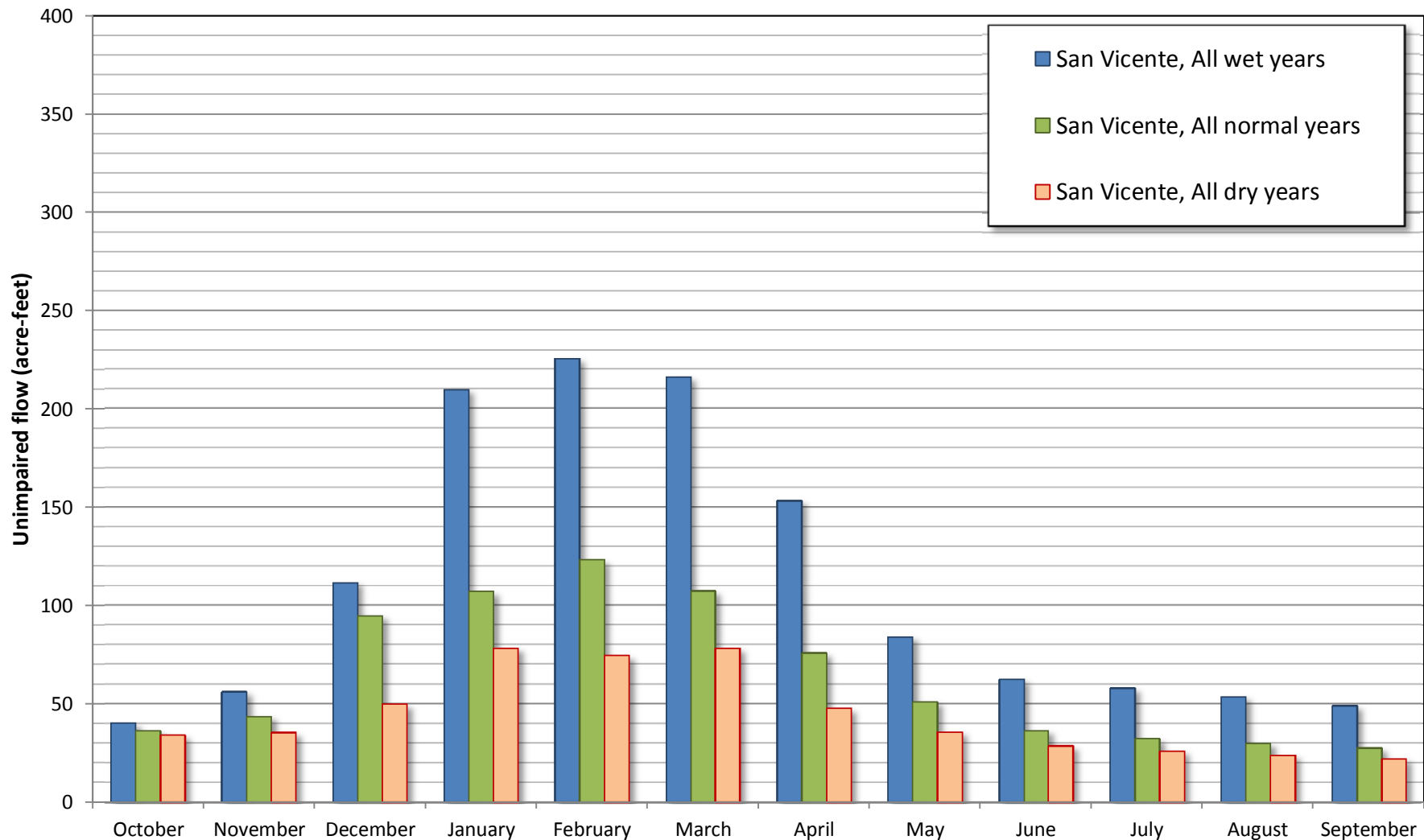
**Figure 6. Modeled versus gaged daily mean streamflow for San Vicente and Denniston Creeks, water year 2011.** Modeled flows were based on correlation to the daily streamflow record at Pescadero Creek. The correlation models were developed to estimate a long-term daily flow record for San Vicente and Denniston Creeks.



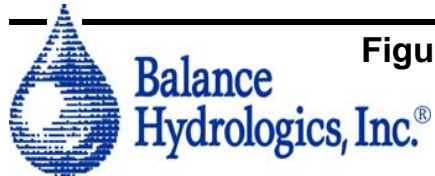
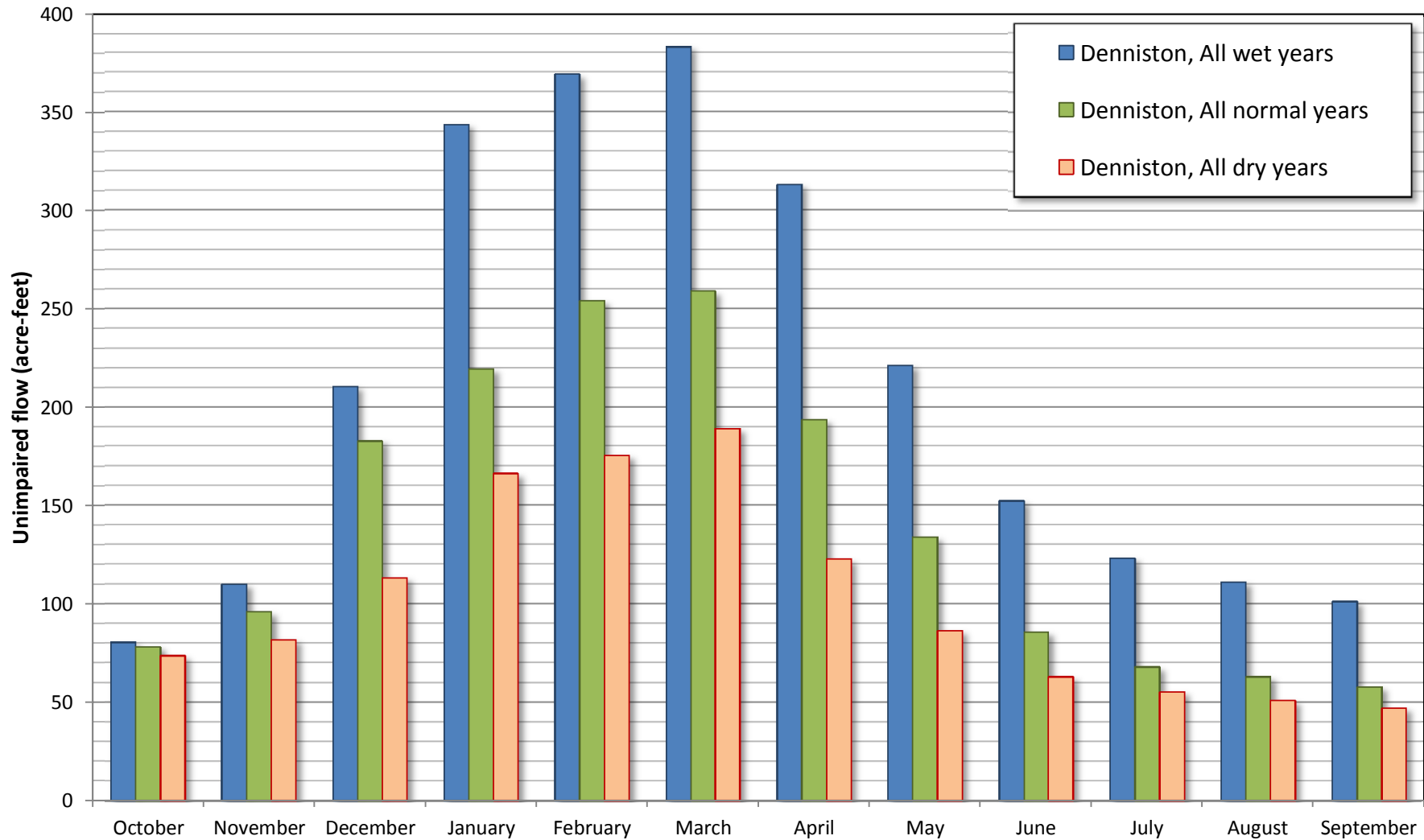


**Figure 7. Modeled versus gaged daily mean streamflow for San Vicente and Denniston Creeks, water year 2012.** Modeled flows were based on correlation to the daily streamflow record at Pescadero Creek. The correlation models were developed to estimate a long-term daily flow record for San Vicente and Denniston Creeks.





**Figure 8. Comparison of unimpaired for different year types, San Vicente Creek, coastal San Mateo County, California.** Average rainfall years are between 85% and 120% of long-term average rainfall. Dry years are less than 85% of average rainfall. Wet years are greater than 120% of average rainfall. Estimates of unimpaired flow are based on correlation to Pescadero Creek (61-year record; see Table 2).

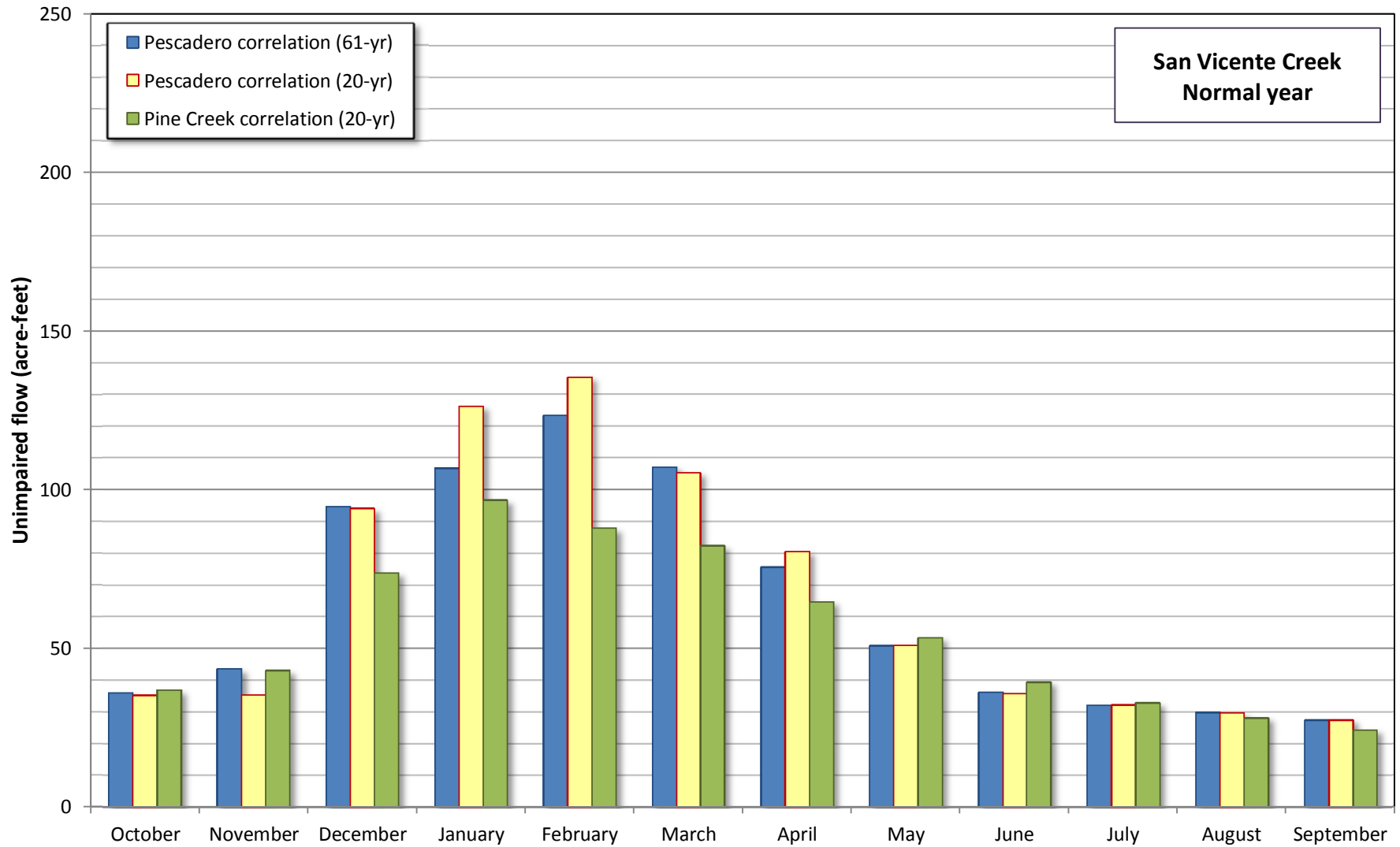


**Figure 9. Comparison of unimpaired for different year types, Denniston Creek, coastal San Mateo County, California.** Average rainfall years are between 85% and 120% of long-term average rainfall. Dry years are less than 85% of average rainfall. Wet years are between 120% and 160%, and very wet years are greater than 160% of average rainfall. Estimates of unimpaired flow are based on correlation to Pescadero Creek (61-year record; see Table 2).

## **APPENDICES**

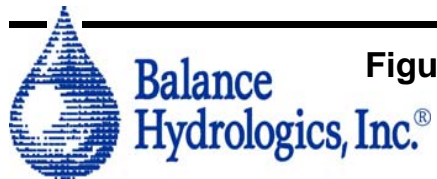
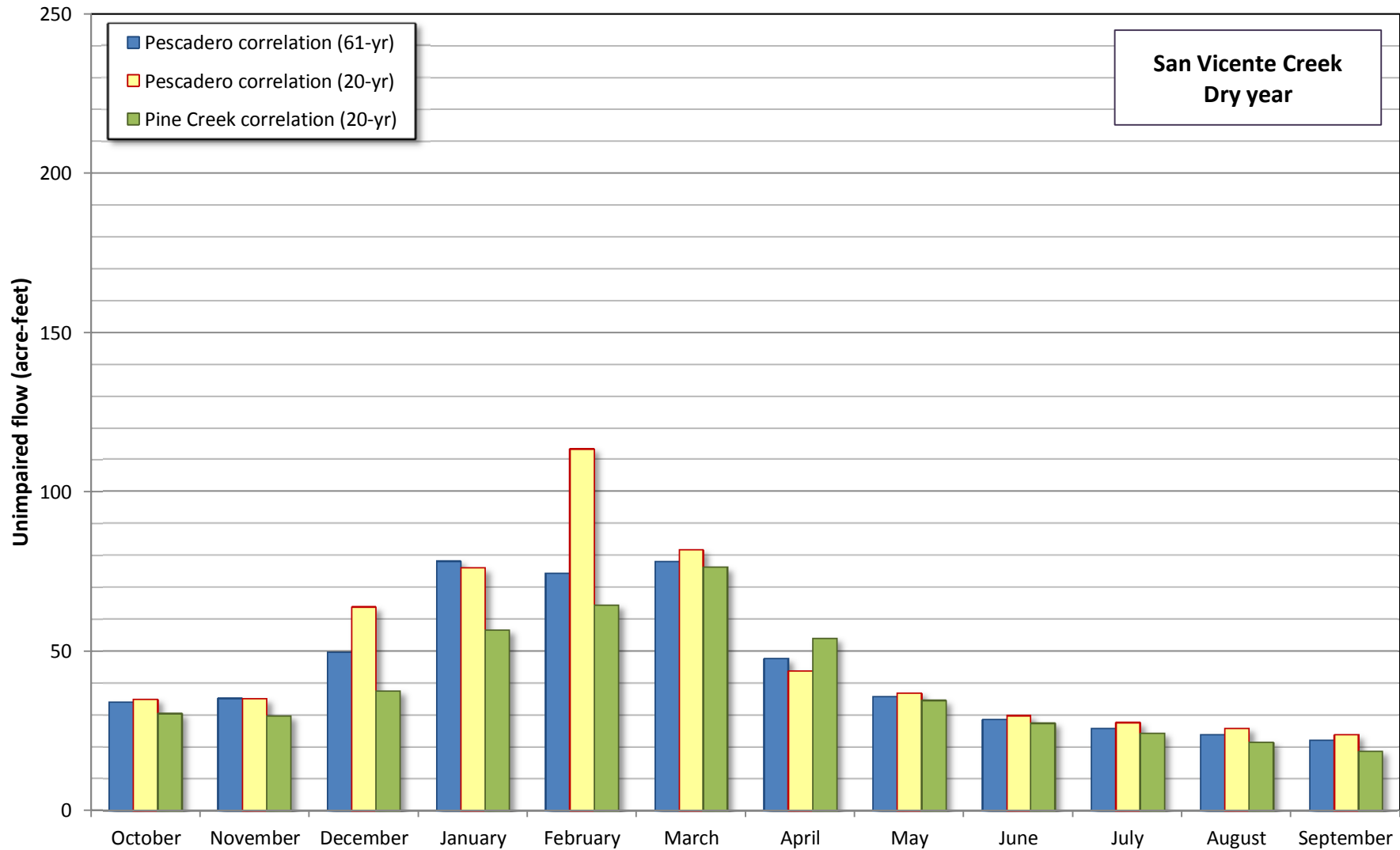
## **APPENDIX A**

**Comparison of Pescadero and Pine Creek  
model results for unimpaired flow in San  
Vincente and Denniston Creeks.**

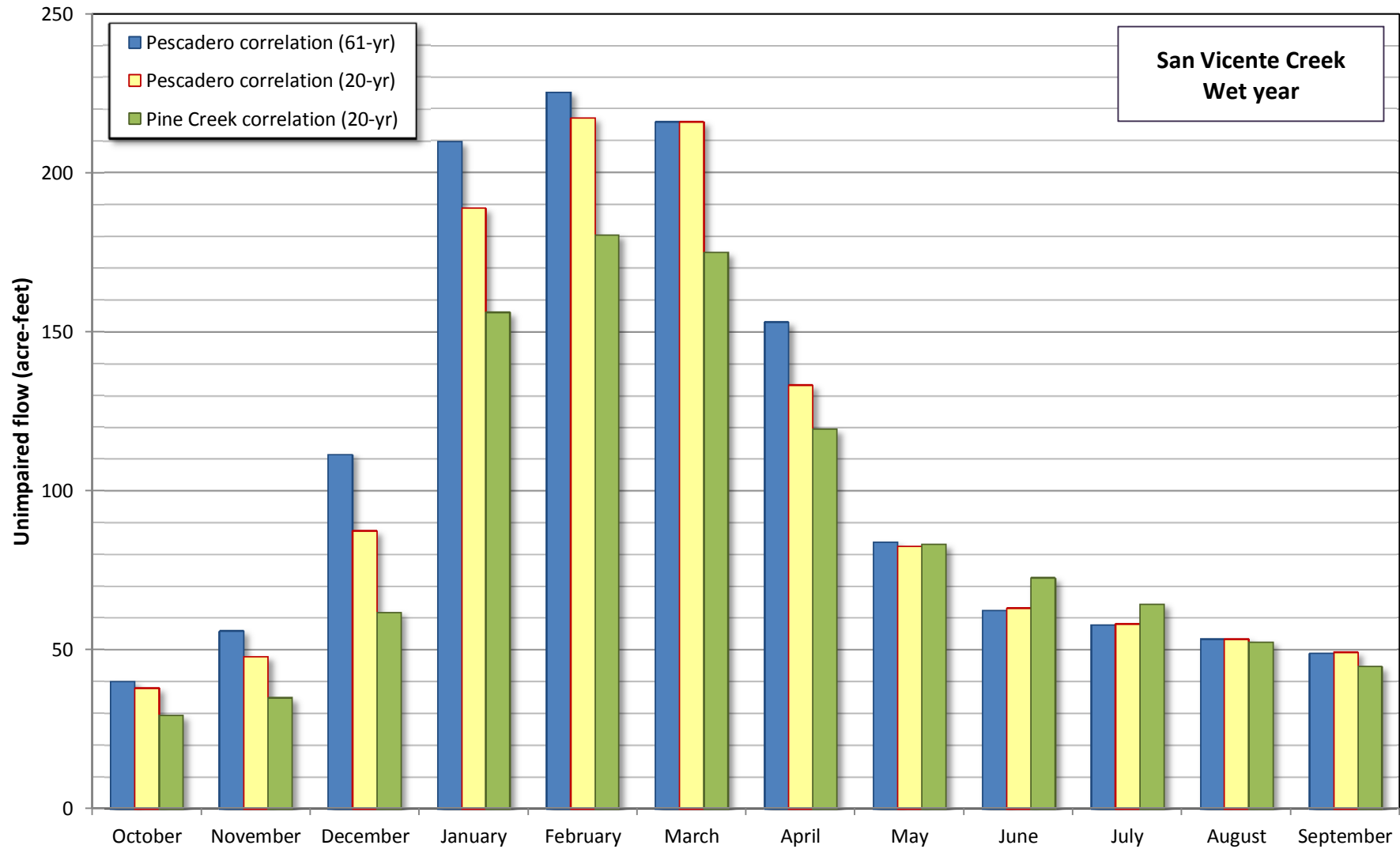


**Balance Hydrologics, Inc.**<sup>®</sup>

**Figure A-1. Comparison of correlation models of unimpaired flow for normal rainfall years, San Vicente Creek, coastal San Mateo County, California.** Normal rainfall years are between 85% and 120% of long-term average rainfall.



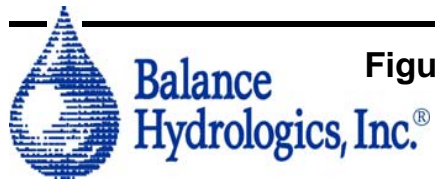
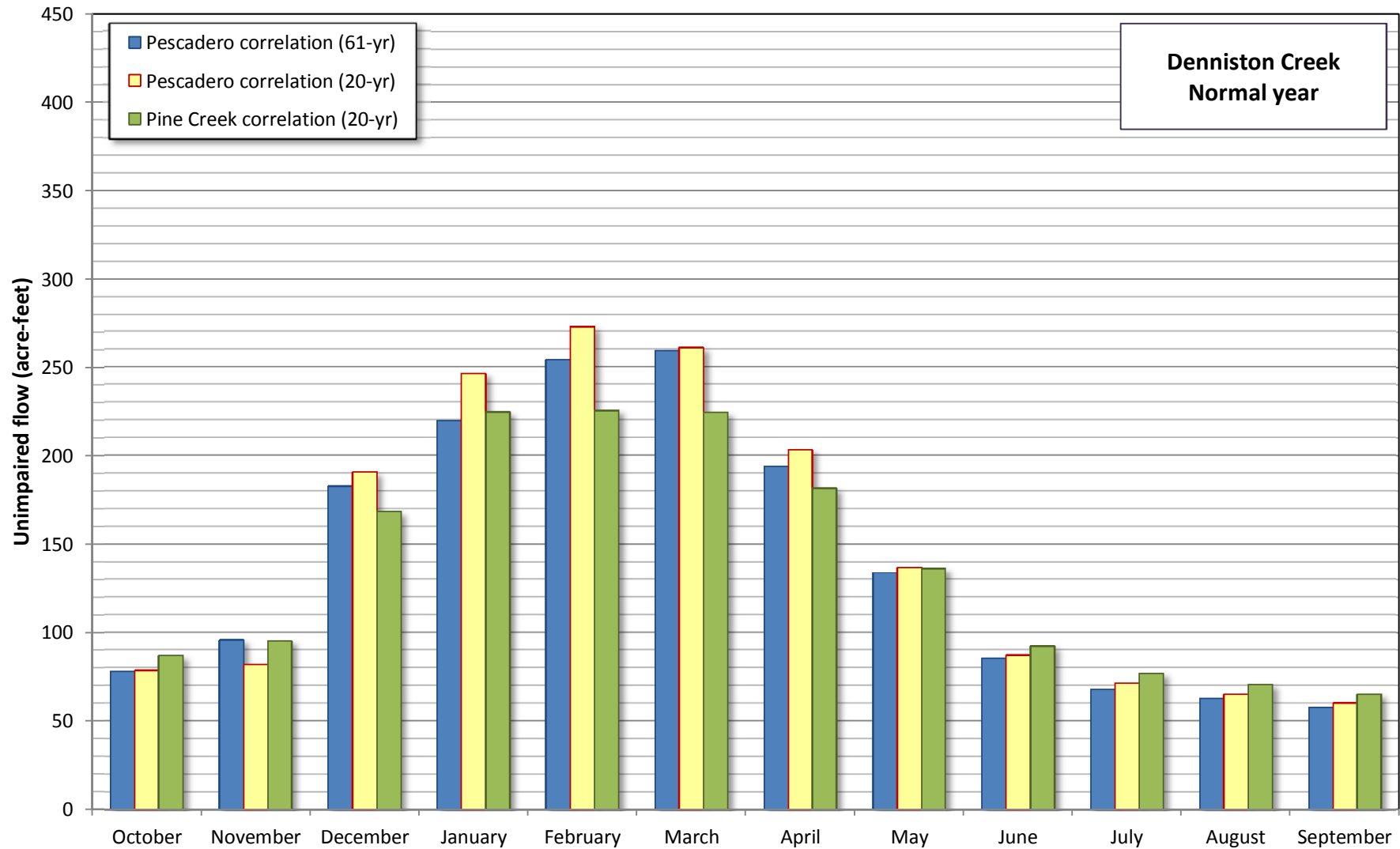
**Figure A-2. Comparison of correlation models of unimpaired flow for dry rainfall years, San Vicente Creek, coastal San Mateo County, California.** Dry rainfall years are less than 85% of long-term average rainfall.



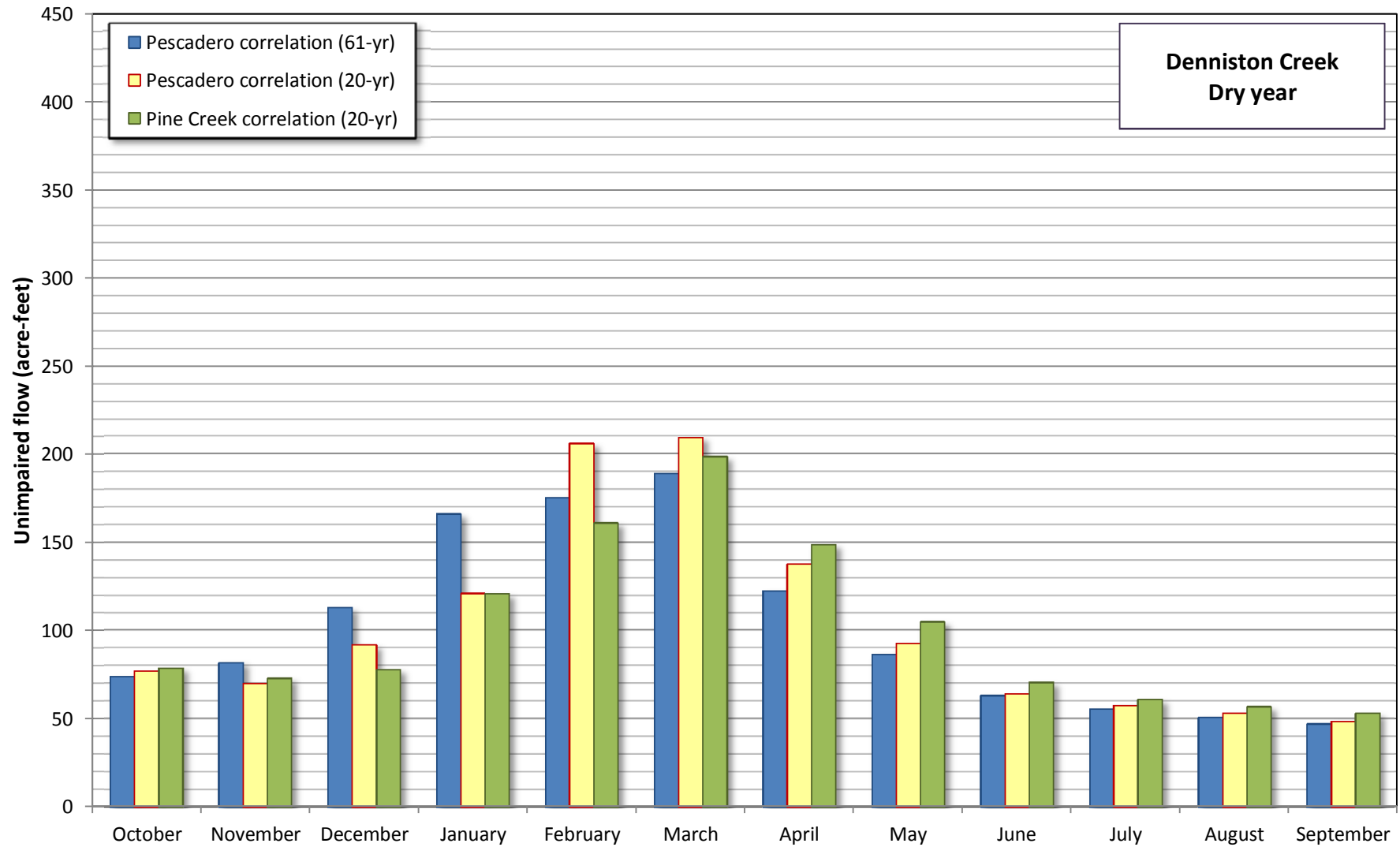
**Balance  
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**Figure A-3. Comparison of correlation models of unimpaired flow for wet rainfall years, San Vicente Creek, coastal San Mateo County, California.** Wet rainfall years are greater than 120% of long-term average rainfall.



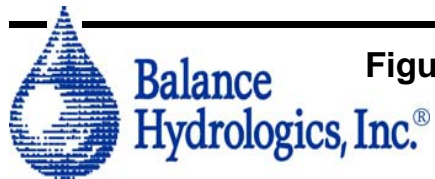
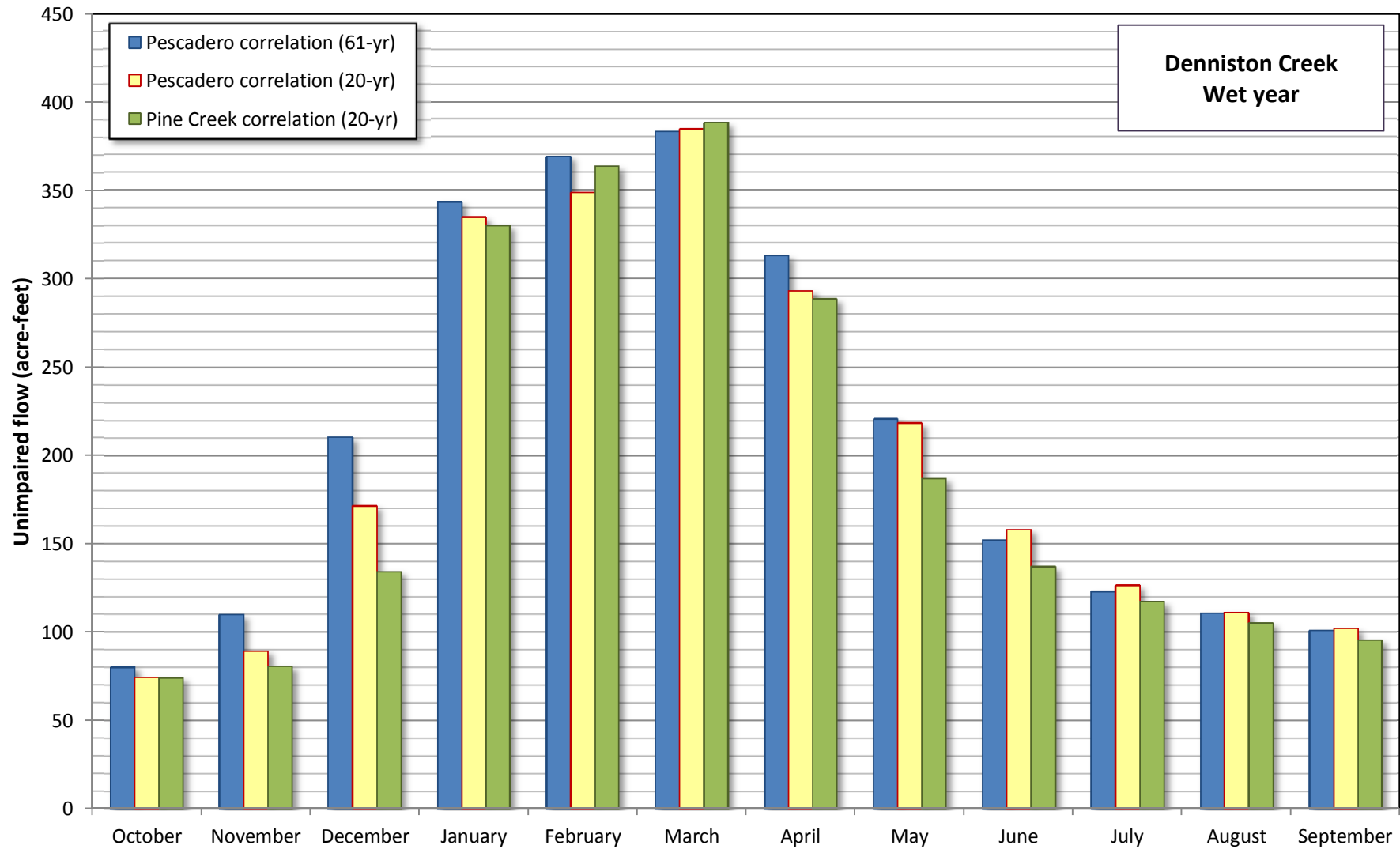


**Figure A-5. Comparison of correlation models of unimpaired flow for normal rainfall years, Denniston Creek, coastal San Mateo County, California.** Normal rainfall years are between 85% and 120% of long-term average rainfall.



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**Figure A-6. Comparison of correlation models of unimpaired flow for dry rainfall years, Denniston Creek, coastal San Mateo County, California.** Dry rainfall years are less than 85% of long-term average rainfall.



**Figure A-7. Comparison of correlation models of unimpaired flow for wet rainfall years, Denniston Creek, coastal San Mateo County, California.** Wet rainfall years are greater than 120% of long-term average rainfall.

# **APPENDIX H**

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## GROUNDWATER TECHNICAL MEMORANDUM



800 Bancroft Way • Suite 101 • Berkeley, CA 94710 • (510) 704-1000  
224 Walnut Avenue • Suite E • Santa Cruz, CA 95060 • (831) 457-9900  
PO Box 1077 • Truckee, CA 96160 • (530) 550-9776  
www.balancehydro.com • email: office@balancehydro.com

## TECHNICAL MEMORANDUM

June 12, 2014

Mr. David Dickson  
Coastside County Water District  
766 Main Street  
Half Moon Bay, California 94019

**RE: Review of new and historical groundwater and surface water data pertaining to the Airport Aquifer, San Mateo County, California**

### EXECUTIVE SUMMARY

The Coastside County Water District (CCWD) has filed a Petition for Extension of Time for its water right permit (Permit 15822) to extend the deadlines in the permit for constructing the necessary infrastructure to divert the entire amounts of water authorized by Permit 15822 (Proposed Project) and to apply this water to beneficial use. This permit authorizes CCWD to divert, year-round, up to 2.0 cubic feet per second (cfs) of surface water from San Vicente Creek and up to 2.0 cfs from Denniston Creek in San Mateo County, California.

This memorandum summarizes analyses completed previously and analyzes the additional data that have been collected by Balance Hydrologics (Balance, hereafter) regarding the groundwater and surface related setting of the project area. The geology of the area is dominated by deeply weathered granitics, which have unique properties. Additionally, the local geologic conditions allow the Airport Aquifer below the project site to refill quickly and completely following the first storms of each rainy season. New data indicate that there is very limited recharge from the surface water of Denniston and San Vicente Creeks to the Airport Aquifer.

Specific conductance data and synoptic flow data presented herein indicate that San Vicente Creek and Denniston Creek exchange water with their underlying aquifers, but that net infiltration is likely negligible under all but the most extreme drought conditions. Based on preliminary estimates, Denniston Creek may contribute as much as 180 acre-feet per year (afy) infiltration to the Airport Aquifer due to underflow from Denniston Canyon upstream of the CCWD diversion point, which will not be affected by the Proposed Project. It is unlikely that the Proposed Project, under which CCWD would divert additional surface flows from Denniston Creek and surface flows from San Vicente Creek, would affect the supplies of the water purveyors and users that pump water from the Airport Aquifer, the health of the Pillar Point Marsh, or the riparian corridor along the two creeks.

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## 1.0 INTRODUCTION

In this technical memorandum, Balance presents a summary of new and historical groundwater and surface water data pertaining to the Airport Aquifer in San Mateo County (County), California. This technical review was conducted for the California Environmental Quality Act (CEQA) Environmental Impact Report (EIR) that is being prepared for CCWD's Petition for Extension of Time for its Permit 15822 (Application 22680). The Proposed Project that is being analyzed under CEQA includes: a petition for extension of time; construction of a new diversion facility and pump station on San Vicente Creek; construction of new pipelines to link the San Vicente diversion structure to the existing Denniston pump station; upgrades to the Denniston Water Treatment Plant; and upgrades to the existing distribution system, including construction of a new booster pump station and new pipelines along Bridgeport Drive. This construction and these facility upgrades will allow CCWD to increase its diversions under Permit 15822, which authorizes diversions of up to 2 cfs each from Denniston Creek and San Vicente Creek year-round.

This data review responds as well to the comment letter on the Notice of Preparation (NOP) of the Draft EIR from Montara Water and Sanitary District (MWSD) dated November 15, 2011, and it may address similar comments from others. The following concerns, initially brought up in the MWSD letter, are addressed in this memorandum:

1. Will the Proposed Project significantly impact the Airport Aquifer groundwater source for MWSD and the Pillar Ridge Manufactured Home Community (PRMHC)?
2. Will the Proposed Project significantly impact riparian habitat along Denniston and San Vicente Creeks?
3. Will the health of Pillar Point Marsh be affected by the Proposed Project?

## 1.1 BACKGROUND INVESTIGATIONS

This technical memorandum utilizes previous work conducted by others, as well as information gathered from CCWD's ongoing data-gathering program, which is being conducted by Balance. The major prior groundwater investigations that have been completed in the basin each aimed at developing a 'safe yield' for the Airport Aquifer. These include the pioneering Lowney study (1974), a paired set of studies by Dr. Phil Flint of USF (1977, 1978), three investigations in 1987, 1991 and 1992 (two by Earth Sciences Associates and Luhdorff and Scalmanini on behalf of CCWD, and Citizen Utilities, a predecessor of MWSD), the 2008 Kleinfelder study, and an analysis by Balance requested by the County, which was aimed at reviewing and filling some of the key gaps in the 2008 report (Woysner and others, 2010). A number of other studies have helped shed light on the basin geometry and year-to-year differences in processes (see references cited below).

Virtually all of these reports noted that a solid record of surface-water flows at various locations throughout the two watersheds was a critical gap in understanding the hydrology of the Airport Aquifer, and would be needed to close the water budget. Partly to fill this need, Balance has been collecting data on the local watersheds for four years on the behalf of CCWD. For the first time, data have been collected concurrently for both surface water and groundwater in the area. Several gages installed in San Vicente and Denniston Creeks measure surface water flow, both above and below CCWD's points of diversion. In addition, selected CCWD wells in the Airport Aquifer have been monitored as part of a long-term and ongoing groundwater monitoring study conducted by Balance since 2010.

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## 2.0 COASTAL COMMISSION LIMIT ON TOTAL AIRPORT AQUIFER PUMPING

The Airport Aquifer and Pillar Point Marsh are within the jurisdiction of the California Coastal Commission (CCC). The maximum annual extraction from the Airport Aquifer that currently is authorized by the CCC is 459 acre-feet. The 459 acre-foot per year (afy) limit was developed from a preliminary water balance presented in the Phase I and Phase II Half Moon Bay/Pillar Point Marsh studies performed by Luhdorff and Scalmanini/Earth Science Associates (LSCE/ESA) in 1987, 1991, and 1992 (Phase II supplement). The CCC based the limit on a) the average annual total rate of pumping during the 1987 – 1990 drought by CCWD and MWSD (411 afy), b) an assumed additional pumping of 25 afy by private parties, and c) the CCC allowance for an additional extraction increment of 23 afy, or 5%<sup>1</sup> of extraction, because flows to Pillar Point Marsh and other management criteria were being met.

## 3.0 AIRPORT AQUIFER GROUNDWATER RESOURCES

### 3.1 HYDROGEOLOGIC SYSTEM: PROCESSES AND BOUNDARIES

As described below, absence of surface water information previously has constrained the many attempts that were made to develop a full understanding of how the Airport Aquifer functions. The gaging and concurrent groundwater measurement work that CCWD has sponsored during the last four years has made it possible to better understand how the Airport Aquifer operates.

The Airport Aquifer is a portion of the “Half Moon Bay Terrace aquifer” (HMBTA), a generalized basin of convenience recognized by the California Department of Water Resources. The HMBTA is an agglomeration of several smaller sub-basins, each of which is separately recharged, and separately discharged. The sub-basins within the HMBTA include the Half Moon Bay terrace and alluvial groundwater system, Frenchmans basin, Arroyo de en Medio, El Granada, Airport, and several smaller basins to the north. Of these basins, the Airport Aquifer<sup>2</sup> is probably the largest, and it is an important water supply for both CCWD and MWSD. A map of the Airport Aquifer and its pertinent hydrologic components and influences are summarized in **Figure 1**. Groundwater may move back and forth between the sub-basins at their downstream, ‘distal’ ends, where they may inter-finger. Balance’s gage data suggest that, aside from water diverted to the agricultural ponds owned by Cabrillo Farms within the Airport Aquifer, the San Vicente Creek basin may function largely separately from the Airport Aquifer, an observation which was inferred in prior work by Kleinfelder (2008). Notably, the agricultural ponds will be unaffected by the Proposed Project.

A number of investigations over the years (Lowney, 1974; Luhdorff and Scalmanini/Earth Sciences Associates, 1991, 1992; Woyshner and others, 2010) have established that the Airport Aquifer fills quickly and completely in most years, often during the first few storms of the year. Most recently, water levels observed in CCWD well 7 (see **Figure 2**) show that the aquifer filled during water years 2010,

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<sup>1</sup> Emphasizing the uncertainty of the water budget upon which the regulations were based, the CCC provided for an increase of no more than 5% if water levels at Pillar Point Marsh were sustained during droughts such that supply to the wetlands was not compromised. The Coastal Commission concluded that the 1990 and 1991 data showed water levels were sufficient to sustain the marsh through the multi-year drought.

<sup>2</sup> In a number of documents, the Airport Aquifer is called the Airport Terrace sub-unit of the HMBTA. We have chosen to simplify it to ‘Airport Aquifer’ both because it reflects common use and because much of the water is in alluvial sediments, rather than marine terrace deposits.



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2011, and 2013, and nearly filled during WY2012.<sup>3</sup> Flint (1979) also noted that the aquifer fills quickly, and when filled, discharges to the harbor. It is generally accepted that once the aquifer is full, additional recharge is either rejected, or the system discharges to Half Moon Bay through submarine springs,<sup>4</sup> to Pillar Point Marsh, and perhaps to the lowest portion of the northern El Granada basin, and conceivably to the lowest portion of the Moss Beach basin.

Our work, the first to use modern 15-minute and 1-hour continuously recording electronic measurements, shows that the quick filling occurs first in response to rainfall, and only later by seepage through the beds of streams. The current and ongoing CCWD well monitoring summarized in **Figure 2** shows for the first time that groundwater levels rise with the first rains of the season, well before watershed runoff generates significantly higher flows in the creeks, and much before any measurable recharge from the season's runoff can reach the wells.

This suggests that direct rainfall recharge (deep percolation of rainfall through the root zone) is the major pathway of recharge in this sandy basin. For example, the aquifer responded within hours to the 2.5 inches of rainfall on October 13 and 14, 2009, a start-of-season event which generated little runoff. Another very discernible rise took place on October 5, 2011, another start-of-season event which generated little, if any, watershed runoff to the streams. Through the recent rainy seasons as well, very rapid responses to rainfall were observed.

The aquifer fills very quickly, and, once full, sustains Pillar Point Marsh and riparian areas, in addition to wells throughout the aquifer. Since the filling originates primarily from direct rainfall infiltration, percolation from streams is less of a factor than might have been anticipated based on prior studies which did not have the advantage of continuous water-level monitoring showing the near-immediate aquifer response to rainfall.

The data show that direct recharge is the dominant process filling the aquifer, although it is supplemented by other sources, including recharge from the streams. During 2010, 2011, and 2013, the aquifer had filled when 17 to 18 inches of rain had fallen, equivalent to about 64 to 68% of mean annual precipitation. Recharge from the streams could not physically arrive at wells 7 and 9 quickly enough to be responsible for these observed rises in groundwater levels.<sup>5</sup> Additional rainfall extended the period before seasonal creek flow recessions began, but did not significantly affect the depth of the water table on September 30 of each water year (**Figure 2**).

### 3.2 NEW STREAM AND GROUNDWATER DATA

Gage and monitoring well data presented here were collected during WY10, WY11, WY12, and WY13, during which there was 105%, 123%, 75%, and 84% of average annual precipitation, respectively. For the purposes of this letter, WY10 is considered "normal" while WY11 is considered "wet", WY12 is

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<sup>3</sup> Rainfall during WY2012 was 75% of mean annual based on MSWD's Montara gage; 13 of 60 years (1951-2010) were as dry or drier at the HMB NCDC rain gage.

<sup>4</sup> Fresh water was encountered in foundation borings for the outer breakwater at Pillar Point Harbor in the mid-1960s at distances of up to 900 feet offshore, indicative of basins with groundwater surpluses.

<sup>5</sup> In theory, pressure heads in a fully-confined aquifer system could increase quickly; however, we see compelling hydrologic, sedimentologic, and water-quality evidence counterindicating confinement, even partial.

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considered dry and WY13 is considered somewhat dry. Of note is that both WY12 and WY13 were both drier than normal but neither of these years was as severe as earlier droughts in the 1970s, 80s and 90s.

Additionally, other work done over past 15 years establishes that the weathered granitic rocks of Montara Mountain have a characteristic hydrology which includes: (a) very permeable hillslopes, such that runoff is generally a small fraction of that observed in other coastal streams, (b) water-bearing weathered mantle frequently extends to depths of 300 feet, or often deeper, rather than just to the 100 feet previously assumed in other studies without any particular substantiation, and (c) development of substantial winter streamflow later in the winter season than would be expected from less permeable watersheds. These findings are documented in reports by Owens and others (2001), Woyshner and others (2002; 2010), Hecht and others (2012), and Brown and others (2013).

### ***3.2.1 Stream Gaging Data, San Vicente Creek***

Balance installed a gaging station called San Vicente at California Avenue (SVCA) in October 2009. During summer of 2010, Balance installed gaging stations San Vicente above Diversion (SVAD) and San Vicente below Diversion (SVBD). The most upstream gage is SVAD, with SVBD downstream and SVCA nearest the mouth of the creek. The results of gaging are summarized using measurements of flow and measurements of specific conductance (an index of salinity). The total annual volumes of water for WY10, WY11, and WY12 for San Vicente Creek are summarized in **Table 1** below.

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**Table 1. Monthly flow volumes along San Vicente Creek and dry-season differences**

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep			
SVAD**	WY 11	ac-ft	32	48	149	85	119	255	116	72	64	58	53	33	May-Sept "Infiltration" (ac-ft)	13
SVBD			18	25	132	87	135	224	121	63	61	53	27	18		
SVCA			14	33	220	135	175	311	129	58	59	47	27	18		
Difference			4	-8	-88	-48	-40	-87	-8	5	2	6	0	0		
SVAD**	WY 12*	ac-ft	40	30	35	40	30	98	118	43	33	35	30	26	May-Sept "Infiltration" (ac-ft)	2
SVBD			42	37	33	28	14	100	127	12	5	4	2	2		
SVCA			53	55	32	35	20	119	108	9	4	3	4	3		
Difference			-11	-18	1	-7	-6	-19	19	3	1	1	-2	-1		
SVAD**	WY 13*	ac-ft	29	41	126	56	29	26	25	20	23	22	21	18	May-Sept "Infiltration" (ac-ft)	36
SVBD			8	42	119	45	15	6	5	5	15	3	6	9		
SVCA			18	61	268	85	25	17	11	1	1	0	0	0		
Difference			-10	-19	-149	-40	-10	-11	-6	4	14	3	6	9		

Key	Apparent Infiltration/diversion
	Infiltration/diversion not observable

\* WY12 and WY13 are preliminary and subject to change

\*\*SVAD values included for reference only, not used in calculating changes in flow along San Vicente

**Table 1** summarizes the total flows passing the CCWD's three stream gages on San Vicente Creek for WY11 and WY12, and WY13, and the monthly differences between gage stations. During the wet season large volumes of water pass by the downstream SVCA gage that are not accounted for at SVBD because SVCA receives water from a larger area, including impervious areas of Moss Beach. However, during the dry season when runoff is minimal, the difference in flow volumes can be used to estimate whether the reach between SVBD and SVCA is a gaining or losing reach. Notably the data show that from May to September, there is generally very little infiltration from the stream into the underlying material. The gages record total losses over the dry months of 14 acre-feet, 2 acre-feet, and 38 acre-feet per year for WY11-13 consecutively. Notably, these values are within the ranges of expected riparian demand, and suggest that, during the monitoring period, no infiltration occurs between SVBD and SVCA.

### ***3.2.2 Specific Conductance Data from San Vicente Creek***

Since installing the gages at SVBD and SVCA, Balance has collected specific conductance data to facilitate interpretation of sources and fates of water at each gage location. **Table 2** presents specific conductance measurements taken on the same days at SVBD (upstream of the range front and the Airport and Moss Beach sub-basins) and SVCA (downstream of the Airport and Moss Beach sub-basins). Groundwater becomes saltier between SVBD and SVCA due to differences in geology, rainfall, and perhaps ocean influences (c.f., California DWR, 1999). With the exception of 2 out of the 25 measurements, specific conductance was higher at the SVCA gage location when compared to SVBD, even during most winter monitoring measurements.

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**Table 2. Comparison of specific conductance, San Vicente Creeks**

Date and Time (mm/dd/yr)	Hydrograph (R/F/S/ B)	Measured Discharge (cfs)	Water Temperature (°C)	SVBD	SVCA	Change
				Specific Conductance at 25C (µs)	Specific Conductance at 25C (µs)	Downstream Increase in Specific Conductance (µs)
05/20/10	B	0.52	12.6	248	308	60
05/28/10	B	0.56	13.2	243	303	61
09/14/10	B	0.1	13.2	246.8	321	74
11/05/10	B	0.19	13.6	236.7	270	33
12/18/10	F	1.93	11.9	265	338	74
12/25/10	F	3.88	11.1	249	250	1
01/12/11	B	1.49	11.3	257	297	40
02/25/11	F	3.73	10.5	191	238	47
03/01/11	B	2.75	10.1	228	273	45
03/21/11	F	5.87	11.6	210	249	39
04/13/11	B	1.91	10.4	229	267	38
05/27/11	B	0.79	12.1	233	264	31
07/13/11	B	1.19	13.2	237	266	29
09/15/11	B	0.29	13.8	239	267	28
11/04/11	B		10.1	245	269	25
02/03/12	B	0.28	10.0	258	91.2*	-167
03/17/12	F		10.1	240	298	58
03/28/12	B	2.37	12.2	208	244	36
04/01/12	F	2.40	12.1	127	152	26
06/06/12	B		11.8	242	311	69
11/26/12	B	0.60	11.6	252	292	40
12/23/12	R	3.37	11.6	302	265	-37
01/24/13	B	0.78	11.5	249	337	88
04/03/13	B		13.2	246	298	53
06/13/13	B	0.07	14.5	296	916*	620

**Mean downstream increase (µs), San Vicente Creek,  
excluding suspect data**

**42**

\*Data suspect

\*\* No concurrent instantaneous flow measurement

Hydrograph: R=Rising, F=Falling, S=Stable, B=Baseflow as assigned by  
observer during sampling

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These consistent increases in specific conductance in a downstream direction demonstrate that there are measurable groundwater discharges into San Vicente Creek between CCWD's diversion and the next monitoring gage under a wide range of conditions. Such downstream increases in San Vicente Creek salinity would be expected if the underlying aquifers are discharging to the creek, principally because the underlying bedrock and terrace-deposit sediments both contain groundwater with salinities that are substantially higher than the salinities of creek water. These data suggest that San Vicente Creek exchanges water readily with the underlying aquifer(s) and, combined with our observations of flow volume, that the reach downstream of CCWD's diversion infiltrates a negligible amount to the underlying aquifer. Notably, our measurement period includes two consecutive drier years when we may otherwise have expected San Vicente Creek to be infiltrating water to the aquifer. The recent gaging (physical) and specific conductance (chemical) data discussed here lead us to conclude that net recharge from San Vicente Creek to the Airport Aquifer downstream of CCWD's diversion is negligible, at least under the conditions we measured during these four years. Considering that San Vicente Creek functions largely separately from the Airport Aquifer (Kleinfelder, 2008), potential infiltration from San Vicente Creek to the Airport Aquifer is merits little concern with respect to preserving the Airport Aquifer for water users, the Pillar Point Marsh and riparian vigor.

Cabrillo Farms currently supplies a portion of the water used for irrigation from two small reservoirs located between San Vicente and Denniston Creeks within the catchment for the Airport Aquifer. Kleinfelder (2008) estimated that each of the ponds may leak 11 afy into the Airport Aquifer, however they only discuss one pond, when in fact there are two, so we surmise from their work that a reasonable estimate of infiltration to the Airport Aquifer from the Irrigation ponds is 22 afy. These diversions occur upstream from SVBD, and do not affect the comparisons in **Tables 2 and 3**, above. There will be no change to the operation of the ponds as a result of the Proposed Project and, therefore the Proposed Project will not affect this source of water to the Airport Aquifer.

#### ***3.2.4 Synoptic Summer Low-Flow Measurements and Groundwater Flow from Denniston Creek***

Denniston Dam creates a 'bump' on the longitudinal profile of Denniston Creek (**Figure 3**). It is likely that infiltrating flow passes under this bump and is available to recharge the Airport Aquifer. We tried to assess the magnitude of this underflow. Opportunities to estimate underflow by differences in flow between stations are best limited to periods when: (a) Cabrillo Farms is not diverting at Denniston Dam for irrigation, and (b) before the first major rains of the fall season. We conducted synoptic surveys, measuring flows with high-precision methods at several locations along Denniston Creek, to evaluate variability of flow along the creek and to estimate how much water might percolate to underflow, in order to shed some light on what the magnitude of the aquifer recharge from Denniston Creek might be. Our measurements, presented in **Table 3**, were focused on two reaches where we thought infiltration might be concentrated:

- Near the head of the canyon, at the head of the wedge of alluvial sediments (i.e. the extent of Cabrillo Farms' canyon field), and
- Between the Above Dam and Below Dam gaging stations.

The following gage stations are installed on Denniston Creek, listed from upstream to downstream and shown on **Figure 1**: DCUF, DCAA (Denniston Creek above DCAD), DCAD (Denniston Creek above Diversion), DCBD (Denniston Creek below Diversion), and DCBC (Denniston Creek below Capistrano).

On August 8, October 1, and November 18, 2013, Balance staff took synoptic measurements. Synoptic flow measurements are taken at different locations along a stream, at or nearly at the same time. Synoptic

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measurements were used here to assess the change in surface flow along the long profile of a stream. On August 2, 2013, staff measured flow at DCAA, DCAD, and DCBC. On October 1, 2013, staff measured flow at DCAD and DCBC. On November 18, 2013, prior to start of the first significant rains of the wet season and when no diversions had been made for some time, our staff measured flow at DCUF adjacent to the upstream-most end of the Cabrillo Farms' canyon field, DCAA (this time at Cabrillo Farm's upstream diversion point, approximately 800 feet upstream of the DCAA location measured on August 8, 2013), DCAD, and DCBD. Pre-rainfall October and November synoptic flow measurements are especially informative, because few, if any, diversions are being made during these times, and depletion by riparian evapotranspiration is at a minimum.

**Table 3. Synoptic flow measurement on Denniston Creek, fall 2013**

	DCUF	DCAA	DCAD	DCBD	DCBC
<i>Discharge (cfs)</i>					
8/2/2013*	no meas.	0.87	0.80	no meas.	0.64**
10/1/2013	no meas.	no meas.	0.62	no meas.	0.49**
11/18/2013*	0.64	0.55	0.76	0.52**	no meas.

\*On these dates we confirmed that there were no diversions from the Cabrillo Farm's canyon field.

\*\* We do not know enough about the Denniston Dam infrastructure to comment of the amount of diversion, if any. No irrigation was observed.

The synoptic measurements made on November 18, 2013 suggest that there may be about 0.10 cfs (about 72 afy) infiltrating from Denniston Creek to the underlying alluvium between the upstream (site DCUF) and downstream ends of the Cabrillo Farms canyon field (DCAA). On November 18, 2013, we observe higher discharge at DCAD compared to the upstream gages, and suspect this increase reflects sedimentation behind Denniston Dam, ~950 feet downstream.

While approximate, these data suggest that there may be roughly 0.10 cfs (or about 72 afy) bypassing the channel and flowing through the lower alluvium of Denniston Canyon, discharging into the lower units of the Airport Aquifer.<sup>6</sup> We present a conceptual model in **Figure 3**. Several side canyons likely also contribute to the flows in lower (or 'basal') alluvial aquifer. We estimate that, on average, the side canyons may convey an additional 0.05 cfs (or about 36 afy) to this aquifer, increasing the total flow through this aquifer to 0.15 cfs (108 afy). Underflow may be double-counted due to geologic interconnection (See **Figure 3**), however we suggest using an estimate of 180 afy (72 afy + 108 afy due to shallow and deep underflow) as "Denniston infiltration" for basal and upper alluvial Denniston underflow entering the Airport Aquifer in a year similar to WY2013, which was a "somewhat dry" year. This is probably the main source of recharge to the Airport Aquifer from Denniston Creek, and is far less than previous estimated contributions from Denniston Creek, which was most recently estimated by Kleinfelder (2008) to be approximately 790 afy. This source of recharge will not be impaired by the Proposed Project, because the infiltration occurs above the proposed point of diversion.

<sup>6</sup> Other coastal channels cut into generally similar coastal granitic rocks have distinct basal alluvial units with higher permeabilities, so it is logical to begin the analysis assuming this configuration. Examples include Scott Creek, Wilder and Peasley Creeks, the Carmel River and both the Big and Little Sur Rivers.



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A stream gage located downstream of the Denniston Reservoir was operated during the second half of WY10 through WY11. Manual measurements during dry periods, taken synoptically (one the same day, and usually within an hour of each other, which represent the most accurate possible comparison between stations), are a good way to detect whether a reach of stream is losing or gaining flow. The data suggest that little, if any, infiltration into the aquifer between Denniston Reservoir and the Pillar Point Harbor (**Table 4**). The maximum measured decrease in flow between DCBD and DCBC was 0.24 cfs, however half of the measurements show no change in flow between DCBD and DCBC and the average loss over the six dry season measurement is 0.06 cfs, equivalent to 17 acre-feet over the dry season. Notably, all of the detected differences, with the exception of the 5/28/10 measurements are within the typical expected confidence interval for high-quality gaged measurement (5%), and are not adjusted for evapotranspirative demand between the two gages, so in all likelihood the amount of infiltration could be less than 17 acre-feet in a given dry season.

**Table 4. Synoptic measurements at DCBD and DCAD, WY10 and WY11**

	DCBD cfs	DCBC cfs
5/28/10	2.11	1.87
7/7/10	1.16	1.16
9/14/10	0.04	0.04
6/1/11	2.92	2.82
7/20/11	1.04	1.04
9/15/11	0.89	0.85

The boundary condition between the El Granada and Airport Aquifers is poorly understood, and there may be surface-groundwater interactions between Denniston Creek and the El Granada Aquifer (cf. Laduzinsky and others, 1988). However, since there is minimal net loss of gain of stream flow between the Denniston Reservoir and Pillar Point Harbor, further work does not seem needed to further define the groundwater basin boundaries for the purposes of the Proposed Project.

### 3.2.5 *Specific Conductance Data from Denniston Creek*

**Table 5** shows the specific conductance data collected from Denniston Creek at DCAD and DCBC. These data show a very small increase in specific conductance downstream, over a variety of stream flow conditions.

The small increases in specific conductance downstream indicate that some groundwater is likely discharging into Denniston Creek. It is likely that Denniston Creek both contributes to and receives groundwater from the Airport Aquifer, though net exchange appears quite small.

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**Table 5. Comparison of specific conductance, Denniston Creek**

Date and Time	Hydrograph	Measured Discharge	Water Temperature	DCAD	DCBC	Change
				Specific Conductance at 25C	Specific Conductance at 25C	Downstream Increase in Specific Conductance
(mm/dd/yr)	(R/F/S/B)	(cfs)	(°C)	( $\mu$ s)	( $\mu$ s)	( $\mu$ s)
05/28/10	B	2.18	11.5	257	268	12
07/07/10	B	0.92	12.8	266	276	11
09/14/10	B	0.74	13.2	265	435	170
11/05/10	B	1.12	13.2	256	290	34
12/18/10	F	4.06	11.8	223	261	38
12/19/10	F	11.14	11.9	177	188	12
03/01/11	B	4.60	10.1	232	227	-6
06/01/11	B	2.73	12.2	253	270	17
07/20/11	B	1.46	13.8	133*	268	135
09/15/11	B	1.31	13.6	262	247	-15
02/03/12	B	**	9.7	262	218	-44
03/17/12	F	**	10.3	180	197	17
03/28/12	B	6.67	12.0	217	237	20
04/01/12	F	5.95	10.1	254	222	-32
12/05/12	B	4.53	13.8	241	275	34
12/23/12	R	8.94	11.4	213	205	-8
01/24/13	B	2.38	11.3	237	282	45
06/13/13	B	0.69	13.7	228	502*	274
08/02/13	B	0.80	13.8	224	280	56
10/01/13	B	0.62	14.0	280	296	16

Mean downstream increase ( $\mu$ s), Denniston Creek, excluding suspect data

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\*Data suspect

\*\* No concurrent instantaneous flow measurement

Hydrograph: R=Rising, F=Falling, S=Stable, B=Baseflow assigned by field observer at time of measurement.

### **3.2.6 Summary of Conclusions Regarding Infiltration based on Flow and Salinity Data**

Both gaging and salinity data indicate that infiltration from San Vicente Creek into the underlying aquifer is limited. Total annual flow from San Vicente Creek into the Airport Aquifer downstream of CCWD's diversion is negligible in most years. The roughly 22 afy estimated by others to infiltrate from the Cabrillo Farms irrigation ponds into the Airport Aquifer will be unaffected by the Proposed Project.

Infiltration into the Airport Aquifer from Denniston Creek canyon may be on the order of 180 afy, based on WY2013 synoptic flow measurements along the stream long profile. However, much of this water likely infiltrates through the channel bed upstream of Denniston Reservoir, and the Proposed Project should not significantly impact this source of water to the Airport Aquifer. As with San Vicente Creek, this conclusion is based both on gaging and salinity data, two independent lines of evidence.

From a hydrogeologic standpoint, and consistent with CCWD surface water gaging and specific conductance data, it appears that the preponderance of recharge from San Vicente and Denniston Creeks occurs above the diversion points for the Proposed Project. Therefore, we do not expect significant impact to the Airport Aquifer as a result of the Proposed Project. Additional data discussed below generally support this conclusion.

### **3.2.7 Well Data**

We have compiled continuous water level data for wells 4 (old well), 7 and 9, for WY10, WY11, WY12, and WY13. In **Figure 2**, we present the three well records along with the three Pillar Point Marsh piezometers and stage in Pillar Point Marsh. From our review of the four years of continuous data and historical analyses we observe:

- CCWD Well 7, located near the access road to the upper Denniston watershed adjacent to Cabrillo Farm's Brussels sprouts fields, is the highest elevation well presented in **Figure 2**. Water levels fluctuate 15 to 20 feet annually, and recover to nearly the same elevation nearly every winter. During WY12, the driest year, we observed that the peak water surface in the well was slightly lower than in the other years, but water levels at the end of the year – reflecting effects on habitat – were not unusually low.
- Water levels in old Well 4 do not fluctuate much, because the well is directly next to Denniston Creek, and appears to exchange water with the creek and its alluvial system. In **Figure 2** we see that the aquifer adjacent to the well fully recharges. During WY13, CCWD diverted roughly 121 acre-feet from Denniston Creek, and we observed no influence of those diversions on the well 4 water-level signal.
- Well 9 is located west of the airport. We have often observed artesian conditions at this well. We observed drawdowns in the water surface elevations during parts of WY10, WY11, and WY13 when nearby wells were in operation. When pumping is not underway at the neighboring production well(s), the water levels fluctuate only nominally, on the order of 4 to 5 feet. Woynshner and others (2010) show a similar rapid recovery from pumping of Well 9.

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### 3.2.7 *Piezometer Data at Pillar Point Marsh*

From our review of the Pillar Point Marsh piezometer data we collected for this study, we conclude:

- There was generally low seasonal variability in groundwater levels in all three piezometers.
- There is a consistent upward gradient, which indicates that the groundwater likely feeds the Pillar Point Marsh at all seasons, at least during periods when the aquifer is not stressed.
- Based on observations during site visits, it appears that the marsh bed sediments at the gage location are perennially saturated at or very near the surface, and inundated seasonally.
- WY13 was the second consecutive dry year (75% and 84% of normal rainfall, consecutively). During WY13, CCWD diverted 121 acre-feet, the most diverted during any year in our four years of continuous data. Notably, it appears that the conditions in the marsh were wetter than in WY10, when there was 105% normal rainfall but also the most groundwater pumping from the aquifer by CCWD and MWSD during the 4-year record.

These observations are consistent with the findings of LSCE/ESA (1991) developed near the end of the 1987-1991 drought. In addition, our review of specific conductance hand measurements from the CCWD monitoring wells, the Pillar Point Marsh piezometers, and the Pillar Point Marsh (**Figure 2**) yield the following observations:

- Water in the deeper Piezometers 1 and 2, 50.6 and 25.8 feet deep, respectively, has similar specific conductance to water in up-gradient monitoring wells 7 and 9, also suggesting a hydraulic connection.
- Water in piezometer 3 (17.6 feet deep) had the highest specific conductance of any of the monitoring locations, consistent with the finer-grained and organic-rich sediments beneath the marsh.
- The specific conductance of the surface water in the marsh expressed large seasonal variability. During spring 2011, the specific conductance of the surface water in the marsh was approximately 200 umhos. By the end of the following summer, the specific conductance was approximately 1050 umhos.
- Old Well 4 has consistently low specific conductance (approximately 300 to 425 umhos). We suspect this is because Old Well 4 is very close to Denniston Creek, and exchanges water more readily with the creek.
- Specific conductance values in Wells 7, 9 and the deep PPM piezometer (Piezometer 1) were all in the range of 750 umhos, or about three times the value for water in Denniston Creek at DCBC, the closest point to the marsh (**Table 5**); thus, a substantial gain in specific conductance occurs between the creek and Well 7, yet only minimal further increases are observed during the second half of the posited flow-line from Denniston Creek to the PPM.

From these observations we make the following inferences about the hydrology of the Airport Aquifer and Pillar Point Marsh:

- It appears that at least a portion of the water feeding Pillar Point Marsh is driven by the localized upward groundwater gradient in the Airport Aquifer under the marsh, and that the upward flow from the Airport Aquifer is especially important during drought conditions. Upward groundwater gradients were observed throughout 2012 and 2013 (the first and second dry years in a row), as well as during 1991 (at the end of the five year drought of the 1980s), when the Airport Aquifer was heavily pumped by both CCWD and MWSD's predecessor.

- The specific conductance data suggest that deeper in the aquifer below the marsh, the salinity of groundwater is similar to that in Well No. 7, up-gradient of Highway 1. The higher specific conductance values in the shallow piezometer 3 are likely due to a) residual salts in the marsh sediment, before West Point Avenue was constructed and changed the hydrology, b) evaporative concentration of salts in moist soils with high water tables, year in and year out, and c) runoff from soils at and downslope of the airport.
- We suspect that the variability in specific conductance observed in the marsh proper results from the variability of seasonally dominant water sources. During wet periods, a majority of the water to the marsh comes from surface flows; during dry periods and drought the marsh is supplied with water through the aquifer, which seems to persist through droughts similar to those of the 1980s (1987-1991) and 2012-13.

## **4.0 PROJECT IMPACTS TO THE AIRPORT AQUIFER**

### **4.1 GROUNDWATER SOURCE FOR MWSD AND PRMHC**

As discussed in **Section 3.1**, the groundwater levels in the Airport Aquifer rise quickly with the first rains of the season, before flows in any of the streams in the area increase from runoff. Therefore, direct rainfall recharge, which will be unchanged by the Proposed Project, is the major pathway of recharge to this aquifer.

As discussed above, San Vicente Creek below CCWD's diversion point is a gaining stream that usually receives groundwater inputs from the Airport Aquifer. This is indicative of an area with a high water table and excess groundwater. Denniston Creek contributes approximately 180 afy to the Airport Aquifer, via underflow through Denniston Canyon, upstream of the point of diversion under the Proposed Project.

During wet and normal years, the Airport Aquifer recharges quickly and completely. During such years, groundwater, in-stream flows, riparian resources, and static levels in and near Pillar Point Marsh will likely not be impacted by the Proposed Project. During dry years and particularly during multi-year droughts, infiltration of surface water becomes a more important source of groundwater recharge. The Proposed Project analysis assumes that, when available all water up to the allowable 2 cfs maximum diversion will be taken. However, the Proposed Project cannot operate below roughly 0.5 cfs (~225 gpm) combined for both San Vicente and Denniston Creeks. Thus, under drought conditions, no water will be diverted from the CCWD diversions on San Vicente and Denniston Creeks, preventing impacts from the Proposed Project during periods of extended drought.

### **4.2 RIPARIAN HABITAT**

The changes in hydrology to San Vicente and Denniston Creeks that may result from the Proposed Project will not significantly impact riparian habitat along the stream corridors. Although diversions from the streams will result in less surface water flow in the creeks, riparian vegetation is maintained year-round by groundwater or stream underflow.

Under the Proposed Project, the CCWD is obligated to maintain a wetted channel downstream of the point of diversion, at the point of compliance. San Vicente Creek is often a gaining stream, which indicates that there is excess groundwater; even when the streambed appears dry, there is likely underflow below the stream. Denniston Creek, which rarely dries up completely, contributes water to the Airport

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Aquifer (estimated in this report at approximately 180 afy). This technical memorandum also provides preliminary evidence that Denniston Creek is hydrologically connected with the Airport Aquifer, and may at times receive limited amounts of water discharging from the aquifer; however, the net flow between Denniston Creek and the Airport Aquifer is minimal. In addition, direct rainfall recharge, which is the major source of recharge to the aquifer, will be unchanged by the Proposed Project and will therefore continue to recharge the Airport Aquifer, which in turn, supports riparian vegetation. The overall groundwater table is not likely to be significantly affected by the Proposed Project due to this combination of factors. Therefore, the riparian corridor along Denniston Creek will not likely be significantly affected by the Proposed Project.

### 4.3 PILLAR POINT MARSH

Pillar Point Marsh lies at the western end of the Airport Aquifer marine terrace, where it abuts the San Gregorio fault. Excluding wells, it is the aquifer's main groundwater discharge area. The Fitzgerald Marine Reserve Master Plan (Brady/LSA, 2002) states that the 41-acre marsh supports 17.5 acres of tidal and estuarine vegetation and 23.5 acres of freshwater wetland, primarily willow woodland. The freshwater marsh, clearly shown on older maps, has rebounded from a nadir in the 1950s when agriculture, grazing, road construction, and berming had reduced the extent of woody vegetation to some discontinuous fringes of willows (Hecht and Kittleson, 2002). Balance's hydrology report for the Fitzgerald Marine Reserve Master Plan notes that the marsh is supported by recharge from rainfall, local runoff, and recharge from Denniston Creek. Balance staff also observed that appreciable shallow groundwater enters the marsh from the bluffs on its west side, but only during wet years such as 1997 and 1998.

Local Coastal Plans from the early 1980s onward have identified the marsh as an area of special biological significance. Maintaining the hydrologic support for the Pillar Point Marsh is one of primary goals of the Fitzgerald Marine Reserve master plan. Existing data indicate that groundwater levels beneath the marsh have been sustained with little change during droughts such as 1987 – 1991 and the current ongoing drought beginning in 2012.

As stated in **Section 2.0**, the CCC ruled in 1994 that pumping from the Airport Aquifer should be limited to 459 afy. The CCC adopted this limit to protect the Airport Aquifer and the Pillar Point Marsh from impacts that could result from overdraft of the aquifer. This safe yield pumping limit was based on drought year conditions at the time, and compliance with that limit will continue to protect the aquifer and marsh.

The CCWD's Proposed Project is separate from CCWD's use of groundwater from the Airport Aquifer. The Proposed Project does not seek to alter the rate or quantity of water being extracted from the Airport Aquifer. The question is whether or not the Project's surface water diversions will affect recharge to the aquifer, thereby affecting Pillar Point Marsh. As discussed in **Section 4.1**, the aquifer fully recharges in wet and normal water years and will be unaffected by the Proposed Project. Therefore, Pillar Point Marsh will not be impacted during wet and normal years. During dry years and multi-year droughts, a larger yet still limited percentage of water enters the Airport Aquifer from infiltration from Denniston Creek. It remains unlikely that the Proposed Project will adversely affect Pillar Point Marsh, beyond the natural wet and dry cycles to which wetland species have adapted.




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**Closing**


Please let us know if you have any additional questions.

Sincerely,

BALANCE HYDROLOGICS, Inc.



Barry Hecht, CEG, CHg  
Senior Principal



Eric Donaldson  
Hydrologist, Project Manager

Enclosures: Figure 1: Hydrologic features of the Airport aquifer and environ  
Figure 2: Groundwater and Salinity, Pillar Point Marsh Piezometers and Marsh water surface elevation WY10-WY13.  
Figure 3: Conceptual hydrogeologic section along Denniston Creek

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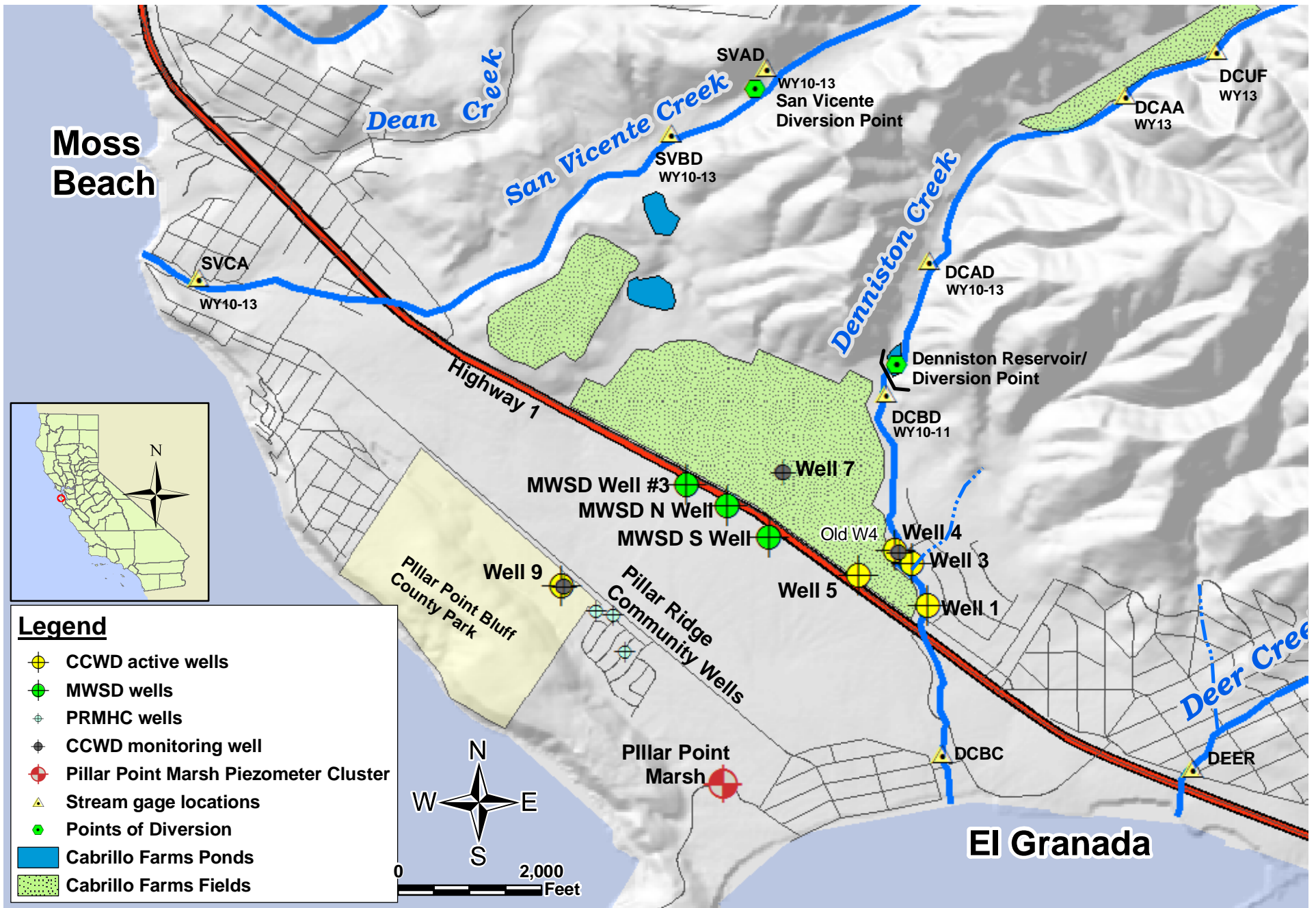


Figure 1.

Hydrologic setting and monitoring locations within the Airport Aquifer, Coastside County Water District, San Mateo County, California.

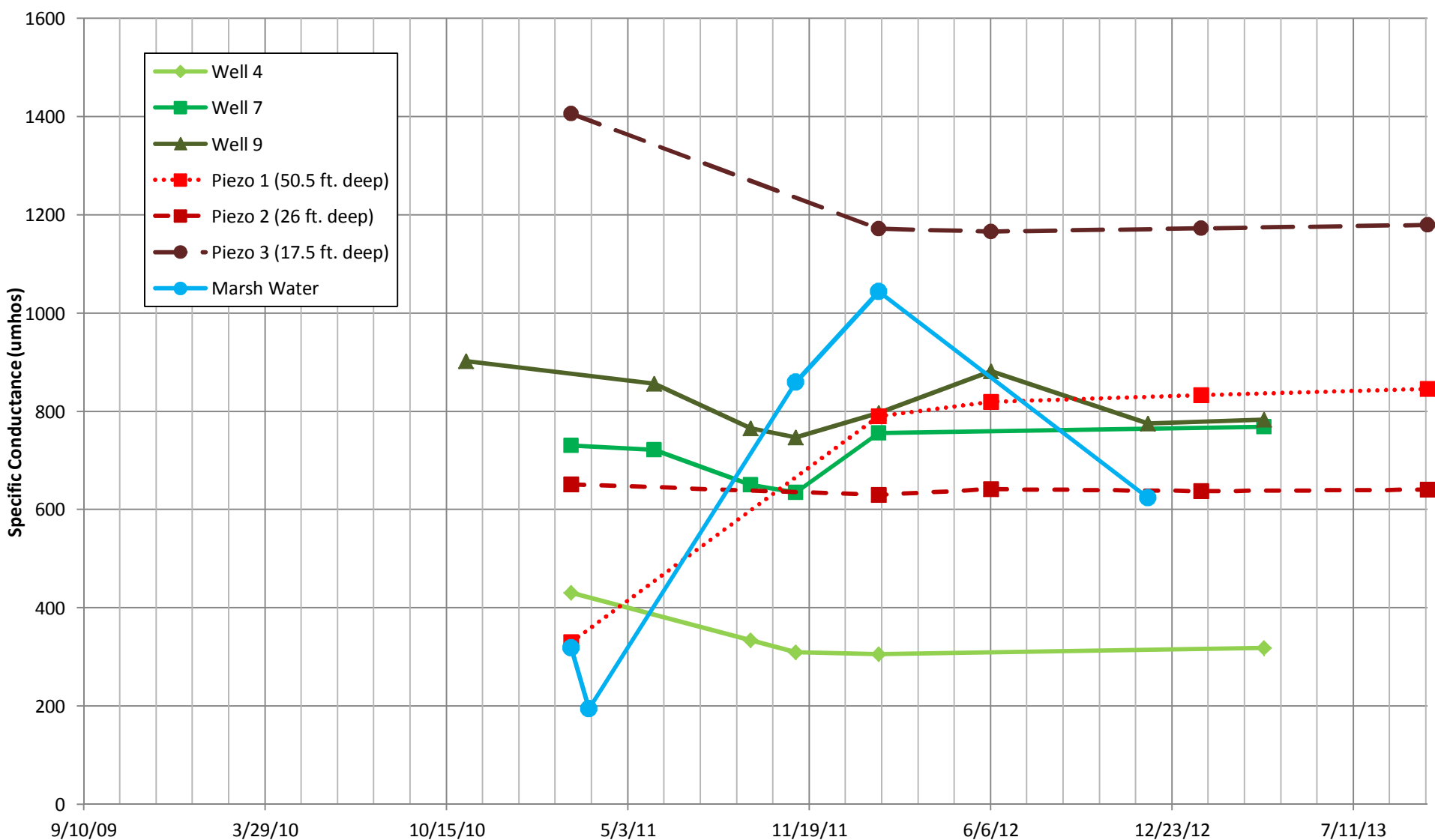
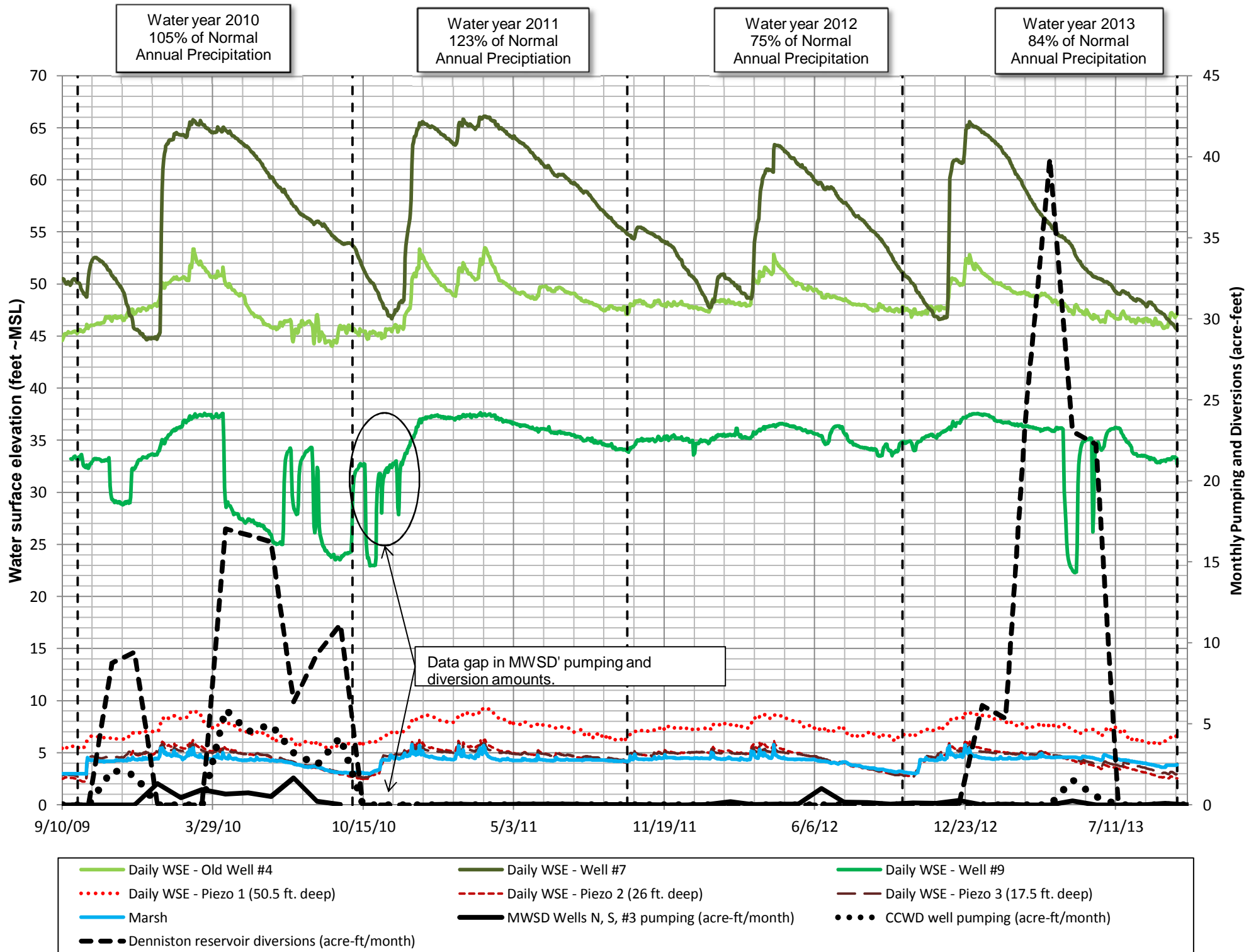
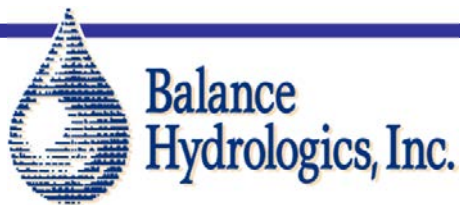
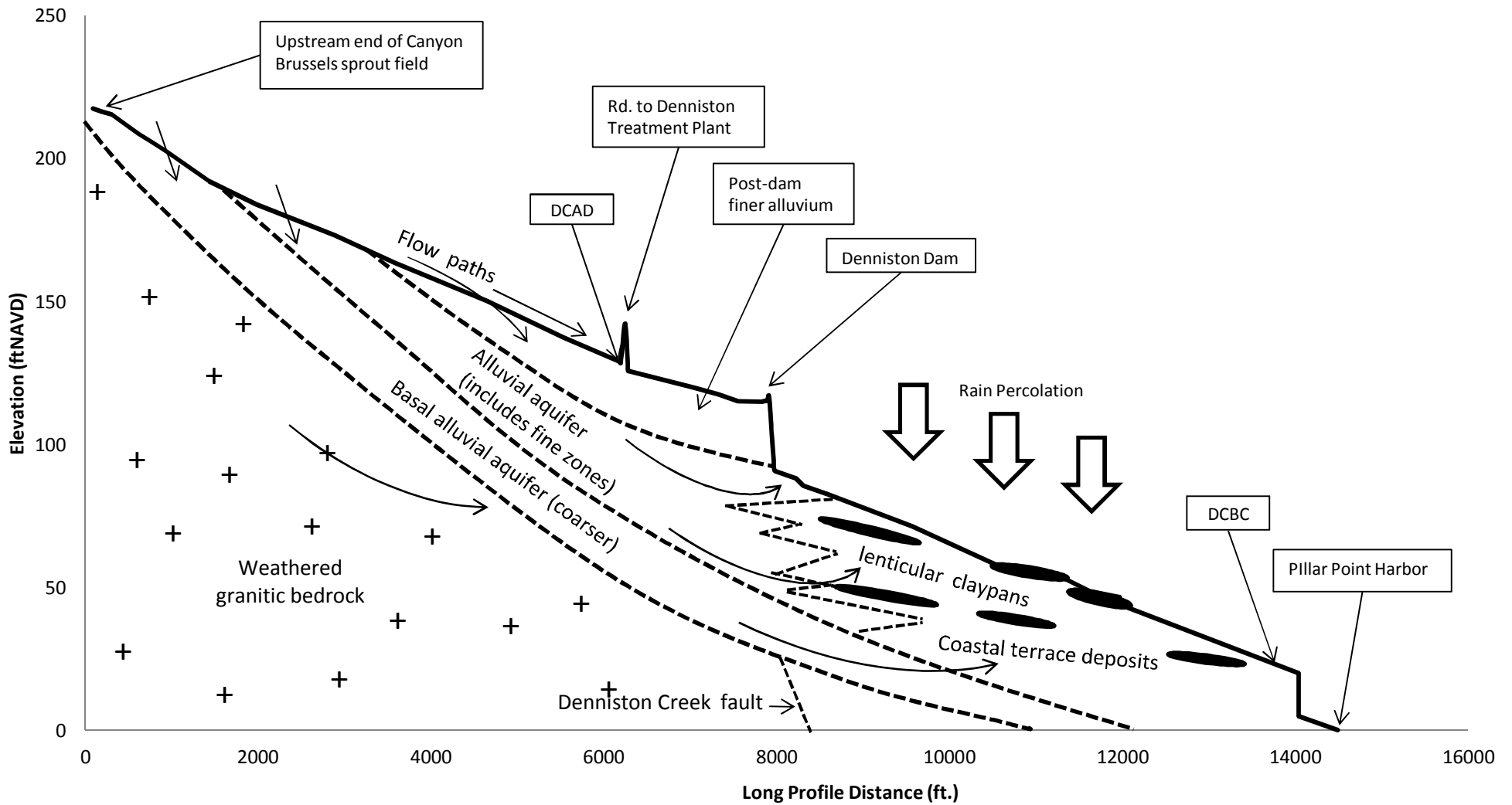


Figure 2. Daily mean water surface elevation and handheld Specific Conductance measurements at Old Well #4, Well #7, Well #9, Pillar Point Marsh water level gage, and piezometers #1, #2 and #3, Coastside County Water District, El Granada, California.



**Balance Hydrologics, Inc.**

Denniston long profile

**Figure 3. Schematic hydrogeologic section along Denniston Creek, annotated with assumed groundwater flow field, San Mateo County, California. All geologic contacts are inferred.**